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INCREASING RETURNS AND TECHNICAL PROGRESS—A COMMENT ON PROFESSOR HICKS'S ARTICLE

By N. KALDOR

In a paper in the June issue of the *Oxford Economic Papers*[1] Professor Hicks takes me to task for regarding technical progress as 'automatic'—something that necessarily happens in time instead of (I presume) treating it as something occasional or sporadic.[2] At the same time he criticizes 'the "production function" people' (Professors Samuelson, Solow, and Fellner) for assuming a production function of '*constant returns to scale*' (p. 128, italics in the original) whereas for his own part, he finds it 'hard to believe that increasing returns and growth by capital accumulation are not tied very closely together' (ibid.). He also refers to Solow's paper which shows that if one postulated a production function of constant returns to scale, only one-eighth of the increase in output per man hour in the U.S. in the period 1909–49 could be attributed to capital accumulation whilst seven-eighths was to be credited to technical progress. 'It is tempting to rush from this to the conclusion that perhaps after all capital accumulation does not much matter, technical improvement (even the improvement which can be made without any capital accumulation) is the thing. . . . It may well be that it is an illusion which has only arisen because the particular production function chosen does not allow sufficient scope for the effect of capital accumulation on productivity' (p. 129).

I entirely agree with this criticism of Solow's procedure—he might have made it even stronger by asking: 'What do they mean by "curves" in Cambridge, Mass.?'[3] A method of estimating the actual parameters of the 'production function' on the basis of assumptions which oblige one to treat seven-eighths of the empirically observed change as the result of shifts in the

[1] 'Thoughts on the Theory of Capital—The Corfu Conference', *O.E.P.* June 1960, pp. 123–32.

[2] I do not understand the contrast he draws between regarding technical progress 'as an autonomous influence, coming from outside as most economists have done' and (as I do) 'something which is built in' and 'something which in some sense is *obliged* to come to the rescue' (p. 131, italics in the original). Of course I regard technical progress 'as an autonomous influence'—what else is meant by postulating a *given* technical progress function? It is 'autonomous' in much the same sense in which say, tastes are treated as autonomous in the theory of value. But a contrast can be drawn between regarding technical progress as something which is steady and continuous in time, or something which is sporadic and intermittent; and I presume Professor Hicks would not cavil at this interpretation of the point he was trying to make.

[3] Cf. Hicks, 'Marginal Productivity and the Principle of Variation', *Economica*, Feb. 1932, p. 88 n.

function and only the residual one-eighth as an indication of its slope must be a pretty futile one, in any case. But is there so much difference between the assumption of increasing returns to capital and the assumption of continuous technical progress? Professor Hicks (or anyone else) is quite at liberty to treat the observed growth of productivity as a manifestation of increasing returns to scale (as he says, with Adam Smith and Allyn Young, and probably Marshall, as partners, he is in respectable company), but if he does so he must also allow for two peculiar features of this relationship which distinguish it from 'increasing returns' as usually considered in the text-books—and which make it, in fact, come to the same thing (or much the same thing) as continuous technical progress, as specified in my 'technical progress function'.

The first of these features, on which Marshall laid some stress, is that the increasing returns associated with growth and capital accumulation is *not* a reversible relationship. If during some historical period, in some particular industry or in the economy as a whole, the amount of output increased fivefold whilst the amount of capital was only quadrupled and the amount of labour only doubled, it does not follow that if, in any subsequent period, the amount of labour is halved again and the amount of capital reduced by three-quarters (assuming with Hicks that this is a meaningful statement) output would also be reduced to one-fifth.

The second is that the increase in productivity resulting from capital accumulation (relative to labour) depends on the *speed* of the accumulation and not only on the *extent* of the accumulation. If a doubling of capital per man involves doubling output per man when capital is being accumulated at the rate of 2 per cent. a year (so that it is doubled over an interval of log. 2/log. 1·02 years), it does not follow that the same relationship will hold when capital is being accumulated at 4 per cent. a year, so that the doubling of capital is telescoped into log. 2/log. 1·04 years. For reasons explained elsewhere[1] the increase in output resulting from the same increase in capital is bound to be less in the second case than in the first.

Unless Professor Hicks holds that this 'increasing returns' is a fully reversible relationship, or unless he believes the return to capital accumulation to be the same, for the same percentage increase in the capital stock, irrespective of whether this increase takes place over an interval of x years, $10x$ years of $x/10$ years, he cannot at the same time *disbelieve* in 'automatic' technical progress, and *believe* in increasing returns to scale due to capital accumulation, for the two are merely different ways of making the same assertion about reality. Since there is no way of measuring the change in technical knowledge as such (in fact, no way of specifying what is meant by

[1] Cf., for example, *Economic Journal*, Dec. 1937, p. 595; *Economica*, Aug. 1959, pp. 221–2, as well as my paper in the forthcoming volume on the Corfu Conference.

the assumption that 'technical knowledge is given and constant over time' other than by the two assumptions already described) it is meaningless to say that the phenomena observed are to be explained by 'returns to scale' *rather than* by 'technical progress', or the other way round.

But if he concedes this, he ought to be *more* worried about the device of representing the relationship between capital, labour and output by the 'Production Function $f(L, C)$'. For quite apart from any question of how 'real capital' is to be measured, the technical relationship between 'real output' and 'real capital' will *not* be a unique one—at any given point of (chronological) time, the productivity of capital will depend not only on its quantity, but also on the rate at which it is changing, or has been changing in the past. There is, in other words, no *unique* Production Function $f(L, C)$, once the hypothesis of constant returns to scale is abandoned and an attempt is made to incorporate what appears (under Solow's method) as a continued shift of the curve into the curve itself.

At the same time Professor Hicks greatly underestimates the destructive effect which the abandonment of the constant-returns-to-scale assumption has on the traditional value theory which the 'Americans' (Professors Samuelson, Solow, Fellner, as well as hosts of others!) are now so nobly defending, and of which Professor Hicks himself was such a distinguished exponent in his Value-and-Capital days. It is all very well to say that 'the marginal productivity theory of distribution goes by the board' but if that goes, a lot of other things go with it, including the *CC* curve of fig. 1 of his paper on which he lays such store, or the theory (which is the essence of neo-classical economics) by which the shares of Capital and Labour in the national income are determined by the marginal rate of substitution between these 'factors'. Nor is it sufficient to assert that the 'whole theory of monopolistic competition . . . is valid in the long run, as well as the short' in order to rescue a value theory of the marginalist, neo-classical type. Constant or increasing physical productivity is quite compatible with diminishing value productivity if the output of one firm, or of a single industry, is taken in isolation. But imperfect competition cannot cause the price of everything to fall in terms of everything; when we move from the micro to the macro level, a falling demand-curve for output as a whole can only be conceived along Keynesian lines, as reflecting diminishing propensities to save (or increasing propensities to consume) with every reduction in the excess of price over prime costs.

Professor Hicks, in his *Value-and-Capital* period, was not nearly so confident about the marriage of Walrasian value theory with universal monopolistic competition. He then said that 'it has to be recognized that a general abandonment of the assumption of perfect competition, a universal adoption of monopoly must have very destructive consequences

for economic theory. Under monopoly the stability conditions become indeterminate; and the basis on which economic laws can be constructed is therefore shorn away.' For that reason he refused in that book to contemplate a course that 'threatened wreckage of the greater part of economic theory'.[1] Nothing has happened (to my knowledge) in the intervening twenty-one years which makes the abandonment of the assumption of perfect competition, and in particular, the abandonment of the assumption of *rising* marginal costs—on the retention of which he laid such stress in his book (p. 84) but which he now throws on the scrapheap with such nonchalance—any the less destructive from the point of view of the neo-classical school of economics of which he still professes to be an adherent.

At least (so it appears) he still professes to believe in it for 'long period' purposes, since he dubs the opponents of the 'classical doctrine', and the 'long-run' supporters of the Keynesian theory as 'Accelerationists'. 'It is distinctive of those whom I call Accelerationist that they are accelerationist in both the short and the long period' (p. 127). I, for one, in contrast to Hicks, never believed in the *short-period* accelerator, and (together with others) strongly criticized Hicks's own use of it in a review article on his trade cycle book[2] where I pointed out that it is only '*as between alternative positions of long-period equilibria*'[3] that one can assume that a change in output will be associated with a corresponding change in the stock of capital. Professor Hicks has never troubled to deal with these arguments; he must not be surprised, therefore, if his readers treat his present (unsupported) attempt to stand that argument on its head—by asserting, *au contraire*, that the accelerationist view is respectable in the short period but not in the long—with some incredulity.

I shall refrain from commenting on other remarkable assertions of Hicks's article (as, for example, that economic growth, unlike non-growth, is not a fit subject for theorizing about) but this does not mean that I agree with them.

King's College, Cambridge

[1] *Value and Capital*, Oxford, 1939, pp. 83–84.
[2] *Economic Journal*, Dec. 1951, pp. 837–41.
[3] p. 838, italics in the original.

THE USE OF ECONOMISTS IN BRITISH ADMINISTRATION[1]

By P. D. HENDERSON

It is very rarely, if ever, that the practical economic questions which are presented to the statesman can be unhesitatingly decided by abstract reasoning from elementary principles. For the right solution of them full and exact knowledge of the facts of a particular case is commonly required; and the difficulty of ascertaining these facts is such as to prevent the attainment of positive conclusions by any strictly scientific procedure.

At the same time, the function of economic theory in relation to such problems is none the less important and indispensable; since the practical conclusions of the most untheoretical expert are always reached implicitly or explicitly by some kind of reasoning from some economic principles: and if the principles or reasoning be unsound the conclusions can only be right by accident. (Henry Sidgwick, *Principles of Political Economy*, 3rd edition, 1901, pp. 7–8; quoted from Joseph A. Schumpeter, *History of Economic Analysis*, Oxford University Press, New York, 1954, pp. 805–6.)

One suspects that . . . senior political officials . . . regard diplomacy *not as a profession but as an occupation, qualification for which requires no special knowledge, training, or experience.* (Charles Thayer, *Diplomat*, Michael Joseph, 1960; p. 267. Italics mine).

1. Introduction

In recent years a number of authors in this country have written about the role and status of economists in government. Some of these studies have considered the question in general terms, and have discussed such topics as the type of economic problem on which the advice of economists is particularly needed, the economic theories which should or may be used, and the extent to which economists should be prepared to make judgements on aspects of policy which are not economic.[2] Others have dealt in more specific terms with the way in which economists are in fact used in British administration, more particularly in the Treasury, and some of these have suggested ways in which the present situation might be improved.[3] This paper comes into the second category, and the more general issues are referred to only incidentally and superficially.

We begin by considering the extent to which economists are in fact used in

[1] The author gratefully acknowledges the help and advice he has received from a number of civil servants, economists, and members of both professions. He is particularly indebted to Mr. P. E. Watts.

[2] See the two articles by Sir Robert Hall, on 'The Place of the Economist in Government', *Oxford Economic Papers*, June 1955, and 'Reflections on the Practical Application of Economics' (*Economic Journal*, Dec. 1959), and by Professor Ely Devons on 'The Role of the Economist in Public Affairs' (*Lloyds Bank Review*, July 1959).

[3] See R. L. Marris, 'The Position of Economics and Economists in the Government Machine' (*Economic Journal*, Sept. 1954); A. K. Cairncross, 'On Being an Economic Adviser' (*Scottish Journal of Political Economy*, Oct. 1955); I. M. D. Little, 'The Economist in Whitehall' (*Lloyds Bank Review*, Apr. 1957); and Dr. T. Balogh's memorandum of evidence to the Radcliffe Committee (*Memoranda of Evidence*, vol. 3, pp. 34–35).

British government departments; the position is summarized in Section 2. From this it will be seen that the present role of economists is exceedingly restricted—to use no stronger term. The implications of this are discussed, with reference to normal administrative procedures, in Section 3. The section which follows presents in summary form a number of cases which serve to illustrate the argument. In Section 5 it is argued, on the basis of the preceding analysis, that the advisory functions of economists should extend more widely than is sometimes suggested. In the final section some suggestions for reform are made.

2. The Extent to which Economists are Employed

It is impossible to say precisely how many professional economists are employed in the Civil Service. If we accept Dr. Little's view, that 'it is impossible to remain an up-to-date professional economist for very long in Whitehall',[1] the number must be taken as minute. This, however, may be too restrictive a standard to adopt, especially when one bears in mind the very sensible and generous provision made by the Civil Service for periods of leave from Whitehall. It seems best to start by listing the officials who are employed as economists in economic sections or divisions of departments, and to bear in mind that this total must be regarded as being on the low side, since at any given time there will be a few economists in posts which carry a different formal title. The exact number falling into this last category could only be ascertained through close personal knowledge of each department, and even then the figure would be to some extent a matter of personal judgement. But though the number of these 'concealed economists' is no doubt small, it would be misleading to omit all reference to them.[2]

Most analysis of how economists are used in British administration has been concerned almost entirely with the Treasury. This limitation is unfortunate; for while the Treasury is certainly the most important single department concerned in economic policy, it is only one among many which are continuously involved in it, and which may have substantial or decisive influence in determining what it should be. As Mr. Chester has rightly said:

> ... all the experience shows that the departments are bound to have a very important role not merely in administration but also in the formation of policy. Indeed, it could be said that in the long run no plan can be better than the calibre of the departmental administration. A department must inevitably possess more expert knowledge in the matters falling within its field and also be in much closer touch

[1] Op. cit., p. 37.

[2] Our information, both for posts which carry the formal title of economist, and for the existence of 'concealed economists', is derived from the *Imperial Calendar*. Some of the officials listed here, even though they are not described as economists, may be recognized as such through acquaintance with their publications.

with the industrial or other organisations in that field than can any small central staff. Therefore, in the first instance the central staff, whether they be in the Treasury or elsewhere, must rely a great deal on the department's appreciation of the prospects within its field.'[1]

For this reason we consider not only the Treasury, but all those departments which necessarily have a close and continuous interest in economic questions, even though they may not be primarily concerned with them.

These comprise the Treasury; the Department of Inland Revenue; the Ministry of Labour; the Foreign Office, Commonwealth Relations Office, and Colonial Office; the Ministries of Aviation, Housing and Local Government, Agriculture, Fisheries and Food, Power, and Transport; and the Board of Trade. No doubt a case could be made out for extending the list;[2] but these twelve departments must certainly be included.

For our purposes, they may be classified into three groups: those that have economic sections or divisions but (as such) no economists; those that have neither economic sections nor economists; and those that have both.

The first group contains three departments: the Ministry of Aviation, the Foreign Office, and the Commonwealth Relations Office. The first of these has a small division called Economic Planning and General Policy, which is divided into two sections, Aviation Economics and Aircraft and Aviation General Policy. The first of these is staffed mainly by statisticians,[3] the second by ordinary administrative civil servants. The Foreign Office has in Whitehall two departments dealing specifically with economic matters, entitled Economic Relations and European Economic Organizations. Similarly, the Commonwealth Relations Office has an Economic Division, which is divided into four departments. As we have noted, however, these three departments do not employ a single economist between them.[4]

The second of the groups, which consists of departments without either an economic section or an economist, is the largest: it comprises the Inland

[1] D. N. Chester, 'The Machinery of Government and Planning', chap. xv of *The British Economy*, 1945–50, edited by G. D. N. Worswick and P. Ady (Oxford University Press, 1952).

[2] The most obvious further candidates for inclusion would be the Admiralty (because of its direct concern with shipbuilding), the Ministry of Pensions, the Ministry of Works, and the Ministry of Health. None of these has an economic section, or employs an economist as such. No account is taken here of the Department of Scientific and Industrial Research, which does not have the same responsibility for advising departmental Ministers.

[3] Only by detailed personal inquiry could one discover how many of those in the Statistician grade are also economists. This illustrates the difficulty, referred to above, of determining exactly how many economists are to be found in Whitehall. The Central Statistical Office certainly contains economists, though naturally it also has officials whose interests lie elsewhere.

[4] Strictly speaking, this must be qualified in the case of the Foreign Office: though there is no economist as such in the Economic Departments in London, the Middle East Development Division, which is attached to the Embassy in Beirut, has a Statistical Adviser and Economist who (rather surprisingly) *is* an economist. There may be one or two equivalent posts elsewhere abroad.

Revenue; the Ministries of Labour, Transport, and Housing and Local Government; and the Board of Trade. It is difficult to decide for which of these the omission is most astonishing.[1]

In the final category there are four departments: the Treasury, the Colonial Office, and the Ministries of Agriculture and Power. Of these, the Colonial Office barely qualifies; for while it has a fair-sized Economic Division, this has only one economist of a rank equivalent to Assistant Secretary.[2] The Ministry of Power has an Economics and Statistics Division, divided into two branches—a Statistics Branch of modest size, and an Economics Branch which can only be described as microscopic. In this department again there is only one economist of relatively senior status (and unlike the Colonial Office, there are none of junior rank); this is the head of the Division, who holds the rank of Under-Secretary and Economic Adviser.

Only two departments, the Treasury and the Ministry of Agriculture, have a significant number of officials who are known as economists. The Ministry has (in addition to its Statistics Division) an Agricultural Economics Division, with three Agricultural Economists who have a rank equivalent to or higher than that of Assistant Secretary, and an Economic Advice and Marketing Division which, together with the Statistics Division, is headed by an Under-Secretary who falls into our category of concealed economist. The Treasury contains five professional economists of a status equivalent to Assistant Secretary or higher, three of whom are in the Economic Section itself. Besides the Economic Section, there are three Divisions which are largely or entirely concerned with economic policy—Home Finance, Overseas Finance, and National Resources.[3] Between them these Divisions employ one economist, who has a rank equivalent to that of Assistant Secretary.

We may summarize by saying that if we consider the senior ranks of the British Civil Service, it is possible to identify about a dozen economic posts held by economists, all of these being located in four departments out of our list of twelve, and almost all of them in two departments. To these may be added a handful of concealed economists, which might bring the total up to twenty or so, and would almost certainly bring in one or

[1] It should be added, however, that this is probably unfair to the Board of Trade. One would guess that the level of economic expertise there is much higher than in the other departments so far mentioned, and that the number of concealed economists, though doubtless small, may be significant.

[2] In quoting employment figures for these departments, we deliberately limit our consideration to officials with an equivalent rank of Assistant Secretary or higher. It is only at this level that an official can normally hope to exert any direct influence on matters of policy. Moreover, it is only at this stage in the official *cursus honorum* that one acquires a personal (secretarial) assistant.

[3] This last is the successor to the Home and Overseas Planning Staff, which in its turn replaced the Central Economic Planning Staff.

two more departments into the list of those who could be said to employ economists. It may be stated with some confidence, though not with complete certainty, that over half of the twelve departments contain no professional economist. The great majority of officials who are actively concerned with issues of economic policy, whether occasionally or continuously, are not economists.[1] We now consider some of the consequences of this state of affairs.

3. The Implications of not using Economists

It is convenient to divide issues of economic policy into two broad categories, though the division is not perhaps a very precise one. First, there are the broad problems of controlling the economy as a whole, and achieving certain general objectives such as full employment, stable prices, a high rate of growth, and a satisfactory balance of payments.[2] Second, there is a wide range of more specific questions which officials have to deal with, and on which they are often instructed to make recommendations. It is not easy to classify these, and their nature can be best illustrated by citing a number of recent instances. From the past few years, the following may be taken as examples: British policy in relation to the Common Market and European free trade; policy in relation to development areas and local unemployment; the government pension scheme; the reorganization of the cotton industry; the future of state forestry, and of government support for private forestry; changes in specific tariffs (such as those on horticultural products); the extent of future government support for the aircraft industry; the problem of whether there should be a British supersonic airliner; the replacement of the big Cunard liners; the construction of a new graving dock on the Clyde; the rephasing of the atomic energy programme; the modification of rent control; and the location and financing of the fourth steel strip mill. To this list we may add a number of more continuing problems, all of which fall within our second category: the policies to be followed by nationalized industries, more particularly in connexion with pricing and investment; road construction; town planning and land use; agricultural policy; and taxation reform.

It will be seen that the issues which fall into our second category are extremely diverse, and that they differ very greatly in their degree of permanence and importance. The characteristics which they share, and which are relevant for our argument, are two: they are specific rather than general or aggregative, and are thus distinct from the range of problems

[1] Though some may have had an economic training, a point to which we shall revert later.

[2] The last objective may be said to subsume—at any rate under the present government—certain more definite aims, such as a large surplus on current account, a stable exchange rate, convertibility of non-resident sterling, and greater freedom of trade and payments.

which lend themselves to analysis on Keynesian lines; and the initial and primary responsibility for dealing with them rests with individual departments, even though the Treasury may often have a say in the decisions which are arrived at. It should also be noted that they are numerous: the above list is by no means comprehensive, so that at any given time there will be several issues of this kind which are under active consideration. Moreover, the sums of money which may be involved are often considerable, and the problems of economic analysis and calculation which are raised may well be difficult and intricate.

It is in relation to these issues that the absence of professional economic advice is most typical, and its consequences most clearly apparent.

The normal administrative procedure for dealing with such questions is by the establishment of an *ad hoc* interdepartmental committee, on which any department which has an interest in the matter is represented.[1] In some cases an outside advisory committee may be appointed; the Chandos Committee and the Railway Planning Board (the Stedeford Committee) are recent examples. The report of such a committee, however, will itself be the subject of consideration within Whitehall by an interdepartmental committee, so that the internal procedure is much the same whether or not outside advice is called for.

It will be clear from what has been said that an interdepartmental committee on a specific question of economic policy may not, and indeed is unlikely to, include a single economist among its members. Of the departments which are concerned with economic issues, only the Treasury and the Ministry of Agriculture make use of economists as such to a significant extent. The Ministry will only be concerned with a limited range of questions. The Treasury is almost always concerned; but it cannot be taken for granted that an economist from the Treasury will be a member of an interdepartmental committee of this kind. As we have seen, there are very few economists in the Treasury who hold a rank sufficiently high to qualify for membership, and these are mainly (and quite rightly) involved with work on the more general objectives of economic policy, such as the control of the level of demand. It is true that even if no Treasury economist is a member of a committee, the Treasury representative on it will often consult an economist about the presentation of the case, or about particular questions which have arisen in the committee's work. But such consultation does not always take place; and even when it does, it may not be an effective substitute for direct participation.

[1] Some questions may remain intradepartmental; but whenever government expenditure is involved, which is generally though not necessarily the case, the Supply Divisions of the Treasury automatically acquire an interest. This will often mean that the other side of the Treasury's operations, economic affairs, will also take part; and this may in fact occur even though the Supply Divisions are not immediately concerned.

It is apparent, therefore, that when a specific question of economic policy is referred to a committee of officials for their advice, the influence of professional economists is unlikely to be significant. Such influence will almost never be decisive; it will usually be slight; and in very many cases it will be non-existent.

We must now consider whether this should be regarded as a defect in the machinery of government.

Two arguments may be used in defence of the present state of affairs. One is that decisions of economic policy can seldom be arrived at by economic reasoning, on the basis of purely technical arguments, so that the importance of economic advice is limited. The second is that in so far as such advice may be needed, there is no need to insist that it should be given by professional economists. These arguments are not completely separate, but it will be convenient to consider them in turn.

The first argument is correct but unimportant. It is obvious that few—if any—issues of economic policy can be decided on the basis of the advice which a professional economist may be best qualified to give. Almost always, other arguments and considerations will be important if not decisive; and officials who are not economists will often if not invariably be better qualified to assess these. Political commitments, defence requirements, social policies, and administrative considerations must be given due weight in drawing up a set of conclusions and recommendations. Indeed, many committees of the type we are concerned with might not be regarded as being primarily concerned with economic policy. In so far as non-economic factors must be taken into account, it is clearly right to argue that the importance of expert economic advice is limited.

There is a further reason why this should be so. The full consideration of any question of policy presupposes a mastery of the relevant facts. Almost always, an official in the department directly concerned with the matter—and also, in many cases, a member of the Treasury Supply Division which deals with the expenditure of that department—will be familiar with the facts at the outset. To this extent he will be a more competent authority on the subject, and a better judge of the merits of an argument or a policy, that an official who (whatever his other qualifications) has not previously worked on the problem.[1]

While this is true, however, it is unimportant for two reasons. First, there is no danger whatever that non-economic factors will be neglected: the way in which interdepartmental committees are constituted ensures that this cannot occur.[2] Second, however important non-economic

[1] Though an economic training may often help to direct one's attention to relevant facts which might otherwise remain unnoticed.

[2] As will be seen, however, these factors may be given too little weight, because too much has been given to very questionable economic arguments.

factors may be, it remains true that the issues we are concerned with *have* economic aspects, that the evaluation of these requires a certain specialized ability and experience which not every official possesses or would claim to possess, and that it is therefore worth while to ensure that some members of a committee dealing with economic policy do in fact possess it.

The need for specialized economic advice is thus inescapable. The question that must now be considered is whether this advice is generally best given by professional economists, or whether the need for it is met under the present arrangements.

Two reasons may be given for thinking that professional economists are not necessarily required. First, it can be argued that a previous formal training in economics is not an essential qualification for giving competent economic advice. Second, it may be said that in so far as such a training is needed, many administrative civil servants who would certainly not regard themselves as professional economists have already received it, so that the need for specialized advice can be met quite simply within the present system. Each of these reasons will be considered in turn.

So far as it goes, the first argument is correct. A previous formal training in economics is not a necessary qualification for giving competent economic advice. The ability to think in economic terms can be acquired later, without formal instruction, by an intelligent person who possesses the right interests and temperamental qualities.[1] Thus it would be wrong to claim that only professional economists can be trusted to analyse economic events and processes, or to form a sensible and fully informed judgement on a question of economic policy.

This in itself, however, does not justify the present arrangements. The absence of previous training, though by no means a total disqualification, is always a handicap. Economics is a science, though a comparatively undeveloped one; and its techniques and ways of thought cannot easily be learned incidentally and unsystematically. It is safe to say that only a minority of people, with rather specialized talents, can succeed in accomplishing this. In practice, it is not necessarily the case that those officials who are concerned with economic issues, whether continuously or at intervals, will be drawn from this minority; nor is there any systematic attempt to ensure that they should be. Further, there is little attempt (in most departments, none whatever) to try to increase the size of the minority by training and instruction and by enabling those who profit from this to specialize in economic subjects. It is still assumed that a departmental official ought normally to spend a period in each of the main branches of

[1] It must be emphasized, however, that the chances of accomplishing this are much greater for an official who works in a department which makes use of professional economists, and are correspondingly much reduced if administrators have little or no contact with economists in the ordinary course of their work.

work that the department deals with, including economic affairs, in the course of his working life. While this method of ensuring varied experience is generally sound its extension to the handling of specialized technical problems is inefficient and indefensible.[1]

The result of this system is that specific questions of economic policy may be dealt with by committees which not only include no economist, but may contain no single member who is really competent to pursue or to assess a connected chain of reasoning of a strictly economic kind.

If these limitations were normally recognized, their consequences would not be serious. Unfortunately, however, this is not the case. 'The man who knows not, and knows that he does not know'[2] is by no means always a representative figure when economic policy is under discussion. It is arguable that one of the chief benefits of an economic training is a clearer awareness of the limitations both of one's own knowledge and of the subject itself.[3] Conversely, the disadvantage of not having had such a training is not simply that it is harder to construct for oneself an adequate framework of theory, though this is true. In the absence of training most people acquire (often without fully realizing it) a set of theories and beliefs about economic questions and relationships. This determines the arguments they use and the opinions they come to, even though it may well be inadequate or over-simplified if not quite literally fantastic.[4] Thus the danger which arises, when specific questions of economic policy are under review, is not that economic reasoning will not enter into the discussions within and between departments, but that the reasoning used will be defective, and that its defects will go unrecognized.

The fact that many administrative civil servants have had some formal training in economics is no safeguard against this danger. There are three reasons for this. First, not every one who has got a degree in economics has a real talent for the subject, and possesses the qualities of judgement and a sense of what is practicable, which are also required.[5] Second, there

[1] It is particularly inefficient in relation to the specific issues of policy with which we are concerned here. A reasonable grasp of macroeconomic problems is at present much easier to acquire than a capacity for dealing with more specialized and restricted subjects. Such topics as growth and inflation are matters of everyday discussion now, and there is quite a large number of publications in which they are analysed competently and readably, some of which are likely to find their way to the desks of officials in the course of routine work. Also, there are more economists in Whitehall who are working on these topics.

[2] The phrase comes from Hafiz, and is quoted from Christopher Sykes, *Four Studies in Loyalty* (Collins, 1946), p. 80.

[3] It is worth stating that no argument put forward here depends on a utopian or even optimistic assessment of the achievements or the potentialities of economics in its application to questions of policy.

[4] Cf. Little: 'Non-economists tend to be too academic. They abstract too much from the real world'; and again: 'I was sometimes shocked by the naive sureness with which very questionable pieces of economic analysis were advanced in Whitehall' (op. cit., pp. 35 and 36).

[5] We shall return to this last aspect of the problem below, in Section 5.

is little reason to expect that the possession of an economics degree will cause a man to be employed in a post where he can use and develop his specialized knowledge. Finally, and most important, training is only a first stage. It is equally necessary to gain experience in applied economic work, and in the handling of data; and this experience should be reasonably continuous, and acquired in collaboration with others. What is needed may be described as the continuous exercise of economic reasoning. An administrative civil servant has no opportunity for this. He is much too busy with other work, most of which requires an entirely different approach and attitude of mind. Not only is it difficult for an economics graduate to keep in touch with the subject (if he wishes to), by reading and reflection; but more important, he will not have the stimulus which comes from constant discussion and argument with other economists.

It can be seen, therefore, that neither of the two arguments that can be advanced in defence of the present state of affairs is convincing. The fact that economic considerations are not the sole basis for recommendations and decisions of policy in no way diminishes the need for specialized economic advice; while as things are, there can be no guarantee that such advice will be available, and indeed there is a strong probability that it will not be.

We turn now to some concrete instances in which professional economic advice seems to have been lacking.

4. Economic Policy without Economics

Four illustrative case studies have been chosen, from different departments and different areas of economic policy. None of these is presented in more than the barest outline, and the reader is referred to the sources mentioned below for further details.

(*a*) *The nationalized industries.* The recent reports of the House of Commons Select committee on Nationalized Industries have provided new and invaluable information, both about the relations between the industries and the departments which are directly concerned with them, and about the criteria and methods of control which the departments use. The first two reports, which dealt mainly with the coal industry,[1] have been analysed in Mr. Munby's recent article.[2] Two brief quotations from this will serve our purpose here.

> A rough, and perhaps not entirely unjust, comment on the proceedings would be to say that the National Coal Board evidence showed a considerable awareness of the economic issues at stake, the North of Scotland Hydro-Electric Board none at all, the Ministries little, and the Treasury perhaps rather less, so long as it was duly repaid the interest on the nationalised stock or borrowings. The Ministry of Fuel and

[1] *House of Commons Papers, 1956/57*, no. 304, and *1957/58*, no. 187–1.

[2] D. L. Munby, 'Investing in Coal' (*Oxford Economic Papers*, Oct. 1959).

Power displayed evidence of great gifts in the field of industrial relations, and all the government departments were clearly skilled in diplomacy (p. 243).[1]

Whatever the machinery, the fundamental matter is to see that the day-to-day trivialities of management . . . are separated from the important issues of policy about prices and investment, and that adequate thought is given to the latter. At the moment it is clear that this is not done (p. 269).

One may pose the question whether 'adequate thought' is likely to be given to the important issues without some change within departments which, more than a decade after the nationalization of the industries they are dealing with, show little awareness of economic issues.

The most recent report of the Select Committee, on British Railways,[2] has yielded further evidence of a similar kind. Once again, direct quotation will serve.

. . . in view of the Ministry's surprise at what they have recently learned about the Commission's finances . . . one can only assume that schemes costing very many millions of pounds were put forward in the early days of modernisation by the Commission, and allowed to go forward by departments, on the basis of figures which apparently meant completely different things to the two sides.

Furthermore, Your Committee are astonished at the way in which the Commission have been able to set in motion great modernisation schemes, without the departments comparing the economics of them with those of the possible alternative schemes; that in giving a banker's sanction to the London Midland electrification for example, the Ministry did not know what the alternative expenditure in using diesel locomotion would be (pp. lii-liii).[3]

Your Committee are surprised that the Ministry of Transport and the Treasury have not until recently examined the returns to be secured from the schemes for which they were lending public money (p. lxxxviii).

As a footnote to these observations, we may add that the problems of what constitutes a satisfactory rate of return, of deciding what is an appropriate basis for calculating prospective rates of return, and of judging whether a given estimate of returns is plausible, are not likely to be best dealt with by officials who, whatever their other qualifications, have had no training in economics, statistics or accounting, and no commercial experience. In these circumstances it is hardly surprising that the right questions do not necessarily get asked, and that when they are asked there is a good deal of confusion and uncertainty about what is the right answer.[4]

[1] The much greater degree of economic awareness shown by the Coal Board may be connected with the fact that it has a professional economist as Economic Adviser in a senior position.

[2] *House of Commons Papers 1959/60*, no. 254. This is an impressive piece of work.

[3] The Ministry referred to is the Ministry of Transport.

[4] Cf. the references to different ways of computing and evaluating rates of return, which are given in the report of the Select Committee on British Railways (pp. l–lii). Mr. Munby has rightly pointed out that the committee would be greatly assisted by the provision of a trained staff with some economic expertise (op. cit., p. 242). The committee have in fact given some attention to this question, and in the course of doing so they received an opinion from Sir Thomas Padmore, a Second Secretary in the Treasury, which deserves quotation here. 'What it [the committee] needs I think . . . is somebody to assist the Chairman of the Committee generally, who is a *bit of an economist* (*I do not mean a professional, academic*

(*b*) *The establishment of the Central African Federation.* The economic case for federation between the two Rhodesias and Nyasaland has been widely accepted and given great prominence. It was strongly emphasized in the official White Papers which appeared at the time when the principle of federation was under review, and the preparations for it were being made.[1] There is no doubt that the British government departments concerned, the Colonial Office and the Commonwealth Relations Office, were committed to the view that the prospective economic benefits were very considerable, and that they advised ministers in this sense. No worth-while evidence for this belief was published, and no economist was at any stage invited to report or express an opinion on the matter. The so-called 'economic arguments', in so far as they can be derived from the very meagre public statements of them which appeared, vary considerably in their degree of cogency; but some—to which quite genuine importance seems to have been attached—cannot be taken seriously at all, while the significance of others seems to have been uncritically overrated. We have here a clear instance of a poor and amateurish appreciation, which had a definite influence on public attitudes and policy, and the defects of which may be directly attributed to the failure to appreciate the need for specialized economic advice.[2]

One aspect of this case deserves comment. It will be seen that, since no question of government expenditure came into the matter, the Treasury was not concerned in it. Thus we have here an instance in which the naïve idea that economic expertise can safely be concentrated in the Treasury, because it is in a position to appraise and 'co-ordinate' the activities of other departments which may be concerned with economic policy, is quite obviously inapplicable.

(*c*) *The construction of a British supersonic civil airliner.* This case differs from the others that have been chosen, since it concerns a highly specific and once-for-all decision of policy. It is also different, in that the issue was referred to an outside committee of experts, which reported to the ministry concerned.[3] The circumstances were described some time ago in an article in the *Financial Times*, from which the following quotation is taken.

> The special committee appointed two years ago to study the feasibility of Britain

economist, but one who, at any rate, has spent much of his working life in economic affairs)....' (*House of Commons Papers, 1958/59*, no. 276, p. 27. Italics mine. How big a bit, one wonders?)

[1] See Cmd. 8234, published in June 1951, and Cmd. 8753, published in Feb. 1953. The economic discussion—such as it is—will be found in paragraphs 25–26 of the former, and pages 5–6 of the latter.

[2] See Arthur Hazlewood and P. D. Henderson, *Nyasaland: The Economics of Federation* (Basil Blackwell, 1960), chap. ii. It must be admitted that the economic analysis contained in the Report of the Monckton Commission, even though an economist was a member of the Commission, is equally worthless.

[3] At that time the Ministry of Supply, though the responsibility for this subject has now been assumed by the Ministry of Aviation.

building a supersonic civil airliner has now completed its work and its report has been passed to the Ministry of Supply. . . .

The committee comprised experts from the Ministry's own Royal Aircraft Establishment, Farnborough, and from such leading aircraft companies as the Hawker Siddeley Group, Bristol Aeroplane, de Havilland, Handley Page, Rolls Royce, Short Brothers and Harland, and Vickers-Armstrongs (Aircraft). The two State Airways Corporations were also represented on the committee.

The committee's task was to examine every aspect of the supersonic airliner, but *with particular reference to the economic problems* involved. . . . Varying estimates of the cost of developing such an aircraft have been made in recent years, ranging between £100 million and £200 million. . . .[1]

Despite the stress that is placed on the economic aspects of the question, it will be seen that no economist was appointed to the committee. There is no reason to suppose that specialized economic advice was made available to it, nor that, since the completion of the report and its long period of consideration in Whitehall, any economist in government service has had the opportunity to comment on the arguments and conclusions.

Here again a footnote is in order. On a highly technical matter of this kind, the contribution which an economist can make is clearly very limited; possibly he would not be justified in coming to a definite conclusion on the main issue at stake. But this does not mean that he would be useless, for even in technical matters such as this one *economic arguments will certainly be used, and may carry considerable weight*; and in the absence of specialized advice the danger that they will not be wholly sensible or realistic is increased.[2]

(*d*) *Land use: the siting of new towns.* Questions of town and country planning and land use may well provide a number of possible illustrations; the problem of siting new towns is an obvious one. Non-economic considerations are of course relevant to the choice that is made; but there are many cases, including the important ones of the proposed new towns at Allhallows and Lymm, in which an assessment of economic factors has apparently been decisive.

The question that has to be answered is how far urban and industrial development should be controlled in the interests of retaining good agricultural land in its present use. There can be no doubt that the emphasis placed by the Ministry of Housing and Local Government on the avoidance of good agricultural land is based on the belief that the output of food within this country ought to be maintained; that is to say, the policy is justified on what are believed to be economic grounds. The choice of alter-

[1] *Financial Times*, 14 Mar. 1959. Italics mine. The report has not been published.

[2] The function of the economist here may be described as partly therapeutic, in the same sense in which one or two contemporary philosophers have described their professional activities as linguistic therapy. It is partly for this reason that the argument that economists have a contribution to make, which ought to be more widely recognized than it is, does not depend on a favourable assessment of the predictive value of economic models.

native sites is to this extent a matter of economic calculation, and should be based on the relative costs involved. Unfortunately, no attempt is made by the Ministry to estimate relative costs, nor does any thought appear to have been given to the question of how this can best be done.[1] The result is that an altogether excessive weight appears to be given to agricultural interests, and that decisions have been taken which (so long as we confine ourselves to the economic aspects of the question) may well be provably mistaken.

The Minister's decision in the case of Allhallows new town—which incidentally went against the recommendation of the Ministry Inspector who conducted the public inquiry into the case—may be quoted as illustrative of the form of reasoning which has been generally adopted.

> The Minister, in dismissing the appeal, made it clear that his reason for doing so was the very high agricultural value of most of the land. Evidence had been given at the inquiry that the productivity of the land was double the national average, and much of it produced two crops a year. The Minister said that such land ought clearly to be retained in agricultural use unless there were the most compelling reasons for developing it, and although the case for the new town was a strong one he did not think it provided sufficient grounds for sacrificing land which was of outstanding value to agriculture.[2]

The profusion of qualitative adjectives, and the total irrelevance of the single quantitative comparison referred to, will be noted. No calculation of relative costs seems to have been made at any stage of the inquiry. The final verdict was evidently arrived at by a process of direct intuition.

In the case of the more recent inquiry into the application by Manchester Corporation to build a new town at Lymm, in Cheshire, a calculation of relative costs was submitted in evidence. This is referred to in the concluding paragraphs of the independent Report of Inquiry into the application:

> . . . through the evidence of Doctor Wibberley, Manchester propounded an argument which was canvassed for the first time in public, and which sought to relate the money value of Lymm's agricultural acres in the national economy to the costs involved by increasing densities within the City. If the argument and its basis be accepted, the conclusion is reached that the conversion of Lymm's agricultural land by building on it, would be far less damaging to the country's basic resources than would be the additional cost of building at high densities. *This argument will, no doubt, be considered by those well qualified to assess its validity* in the present context together with the opposite argument of the National Farmers' Union that it is basically fallacious. I must assume that to save or postpone the taking of good agricultural land is at least as important as the maintenance by Manchester of a steady and adequate rate of housebuilding.[3]

[1] No thought within the Ministry, that is. The problem is considered in Mr. J. T. Ward's article on 'The Siting of Urban Development on Agricultural Land' (*Journal of Agricultural Economics*, Dec. 1957), to which the reader is referred. See also G. P. Wibberley, *Agriculture and Urban Growth* (Michael Joseph, 1959), especially chaps. 7 and 10.

[2] From a press release issued by the Ministry of Housing and Local Government, 13 Feb. 1957.

[3] Ministry of Housing and Local Government: *Report of Inquiry into the Proposed Development of Land at Lymm for Manchester Overspill* (H.M.S.O., 1958), para. 34. Italics mine.

Thus the Inspector's terms of reference, together with a natural reluctance to pass judgement on a novel and technical argument, precluded him from giving weight to this evidence. At the same time, it must be feared that his confidence that it would be properly assessed at a later stage was sadly misplaced.[1]

The reader may be tempted to believe that in this case, as with the proposals for federation in Central Africa, the use of naïve economic arguments must not be taken at its face value, and that these arguments were advanced in the full (though unstated) knowledge that they were not much good, but in the justified belief that they would help to win support for policies which had already been adopted on other grounds. While it cannot be proved that this was not the case, a study of the evidence shows it to have been very unlikely indeed. It seems clear that genuine and considerable importance has been attached to economic arguments which were accepted uncritically, and on which professional advice was never obtained. If the argument of the previous section is accepted, there is nothing surprising about this.

We now consider, in the light of the above discussion, the advisory functions which may be assigned to economists in government.

5. The Function of Economists in Government Departments

The neglect of economics in British government departments[2] has gone surprisingly unnoticed by economists.[3] This is partly because only a few economists are especially interested, at any given time, in more than a small number of the wide range of specific problems in relation to which the neglect is so conspicuous.[4] Thus the way in which they are dealt with, even when it becomes publicly known, often passes without comment.

[1] It should in fairness be added that while the Manchester application was rejected by the Minister, higher building densities within the city were not the only alternative to Lymm. But it is difficult to agree with Dr. Wibberley (op. cit., p. 202) when he states that 'the final decision was influenced only to a small extent by the evidence given as to the local and national importance of the farm land at Lymm'. While it is true that alternatives to Lymm were shown to exist, the only reason for preferring them seems to have been the high agricultural value of the land at Lymm. It may be the case, however, that the Ministry's assessment was not much affected by the evidence actually given at the inquiry.

[2] And not only there, but in most of the nationalized industries, on advisory committees, and on official bodies such as the Restrictive Trade Practices Court.

[3] Dr. Balogh (op. cit.) seems to be the only economist without first-hand experience in government service who has appreciated the significance of this problem. Cf. also his vigorous contribution to *The Establishment* (edited by Hugh Thomas, Anthony Blond, 1959, chap. 4), though this raises wider and more controversial issues than are considered here. Political analysts, perhaps less surprisingly, have also failed to deal adequately with this aspect of British administrative practice. In particular, the section on economic policy in Professor S. Beer's *Treasury Control* (Oxford University Press, 2nd edition, 1956) is feeble to a degree.

[4] With the notable exception of Mr. A. C. L. Day, whose articles in *The Observer* have set a high standard in financial journalism.

Apart from this, few of the younger economists have had experience of government service—nor, as things are now, are they likely to acquire it.[1] Many more senior members of the profession worked in government departments during the war; but in one respect their experience seems to have been somewhat limited. Most of them were employed in one or both of two activities: the application of Keynesian ways of thinking and methods of analysis to the broad problems of controlling the economy; and forms of direct quantitative planning, such as the allocation of materials or the formulation of import programmes. Now that the Keynesian approach has long been accepted in Whitehall,[2] while quantitative planning has been almost entirely abandoned, it is perhaps natural to assume that Old Caspar's work is done, and that so long as there are enough economists in the Treasury to produce national income forecasts and similar studies the position must be reasonably satisfactory. As we have seen, this is very far from being the case.

A further reason for unconcern has no doubt been the scepticism which most economists feel about the practical application of the subject. While this is perhaps justified, the inference that the economist may have little to contribute is mistaken. For one thing, this scepticism is often not shared by the amateur and part-time economists who are now so numerous in British administration, so that an economist may be valuable even if he is confined to a negative and restraining role. Second, the value of an economic training, as an aid to clarity, the perception and formulation of relevant arguments and factors, the readiness and ability to work in quantitative terms, and the recognition and evaluation of alternative courses of action, is in fact considerable. Direct experience of this, whether in Whitehall or elsewhere, is apt to cure what Dr. Little has called 'the malaise which derives from thinking one's subject overblown'.[3]

It is apparent, therefore, that the function of economists in government has been conceived of, not only by ministers and civil servants but by economists themselves, in excessively narrow terms. Too much attention has been given to the important macroeconomic problems, and too little to the large number of more restricted issues which, though individually they are not usually of the same significance, certainly deserve more informed and considered treatment than they can necessarily expect to receive at present. While, therefore, we may agree with Sir Robert Hall that 'the special province of the economist is the economic system as a

[1] There is an admirable arrangement by which university economists become temporary members of the Economic Section of the Treasury, but the numbers affected are very small.

[2] It was accepted with a degree of speed and success which reflects great credit on those concerned, whether economists or senior civil servants.

[3] Op. cit., p. 35.

whole, and the relations between the working of its different parts'[1] it should not be inferred that this is by any means his sole province.[2]

The relationship between the Ministry of Transport and the British Transport Commission may again furnish us with examples. The calculation and assessment of rates of return has already been referred to: although this is in part a matter of the relation between different sectors of the economy, it is also a highly specific problem in the analysis and interpretation of specialized data. The same applies to the problems of railway costing, and the computation of profits or losses in respect of particular lines or types of traffic. The doubts expressed on this subject by the Select Committee on Nationalized Industries seem on the face of it to be justified;[3] and it is clear by implication that the Ministry of Transport was of no assistance to them on the matter. Again, it would seem reasonable for the Ministry to satisfy itself that in the process of changing from steam to diesel traction, the variety of types of diesel placed in service was not excessive.[4] But this also involves the analysis of technical and financial data, a specialized task that can only be carried out with the guidance and collaboration of railway engineers and cost accountants.[5] To give a final instance (which does not exhaust the list), it seems unlikely that there is no useful work that an economist could carry out in the Ministry on the subject of fare and rate structures, particularly in relation to different forms of transport.

One further illustration may be given, of a relatively non-technical kind. It would be interesting to know to what extent the policies of the Colonial Office and Commonwealth Relations Office in Central Africa have been influenced by the belief that a separate Nyasaland would not be 'viable',[6] or by the curious notion that Nyasas would become reconciled

[1] In his article in *Oxford Economic Papers*, op. cit., p. 125. But cf. also his *Economic Journal* article, in which the need for economists to carry out quantitative investigations into more specific problems is emphasized (op. cit., pp. 641–2).

[2] Nor should it be inferred that, within the range of questions which may be said to fall under this heading, sufficient attempt is made to secure informed appraisal and advice. To take another particular example, it seems possible that policy in 1956 was affected by quite unrealistic estimates of the economic significance of the Suez Canal to this country. Cf. the speech by Mr. Harold Watkinson (then Minister of Transport) on 6 May, 1957, in which he said: 'Because we faced up to the problems arising from the blocking of the Suez Canal in a spirit of teamwork we have been able to show that *it is not quite as essential to our economy as we thought before the event*' (*The Times*, May 7 1957. Italics mine).

[3] *Report*, op. cit., paragraph 137.

[4] In the original modernization plan, expenditure on diesel locomotives only, i.e. excluding multiple-unit stock, was put at £150 million, which seems a large enough sum to make it worth while to look into the matter. The paragraph devoted to this subject in the most recent Report of the B.T.C. (*Annual Report and Accounts, 1959*; H.M.S.O., 1960; para. 95) is by no means wholly reassuring.

[5] The borderline between work done in the Ministry and in the B.T.C. on problems of this kind need not and should not be too precise.

[6] Whatever this may mean—the inverted commas are deliberate. It must be admitted that economists themselves, especially when writing for the general public, sometimes set a

to the idea of federation with the Rhodesias once the economic benefits of this had become apparent.[1] Some interesting work could be done, given access to the files, on the influence of naïve economic beliefs in the formation of foreign and colonial policy. There is surely a therapeutic function for economists here.[2]

In concluding this section, a number of disclaimers should be made, which may serve to meet some possible objections and misunderstandings.

First, the object of any reform in the present arrangements must be to raise the general quality of the economic advice given to ministers, and not to increase the number of jobs for economists. If civil servants, whatever their training, are good at handling economic issues, there is no point in worrying about whether they prefer to call themselves professional economists.[3] The only reason for emphasizing economic qualifications is that a training in economics, together with further experience of applied economic work, is the only form of preparation which is specifically designed to enable people to analyse economic issues more competently than they otherwise could. It is not an unimportant reason.

Second, it must be acknowledged that professional competence as an economist does not necessarily go with judgement, a sense of the possible, and a capacity for working successfully with others. This argument can easily be overdone, however. The more rugged individualists in the profession are unlikely to seek or obtain employment in Whitehall, so that problems of collaboration should not present especial difficulties. As for judgement, it may be argued that while as a class administrative civil servants may well have better judgement than economists, there must be a fairly substantial overlap between the two distributions, and it should not be a hopeless task to identify economists who appear better qualified in this respect than some of their colleagues. Moreover, civil servants with good

poor example by the use of inert metaphors and imprecise concepts such as this. Standards would be much raised if (for example) the following nouns were never used in conjunction with the adjective 'economic': health, sickness, strength, weakness, suicide, catastrophe, and collapse; if instead of using terms like 'viable', 'flexible', 'resilient', or even 'essential', authors tried to say what they thought they meant; and if there were a ban on inappropriate analogies (such as the comparison of an economy to a motor-car—'driving the engine flat out', etc.), and repellently emotive phrases like 'monetary discipline'.

[1] This type of reasoning may also have been responsible for some over-optimistic appraisals of the survival prospects of the Nuri as-Said régime in Iraq.

[2] Not that more technical economic subjects can be excluded from the determination of external policy—e.g. the economics of the oil industry.

[3] The reader will have noted that some of the defects or mistakes which were referred to above would have been clearly apparent to many people besides economists. The need for a department concerned with a nationalized industry to pay close attention to the industry's expected rate of return on capital would have been immediately recognized by any commercially minded accountant, or indeed by any manager in an efficiently run business. But how many administrative civil servants have accounting experience or qualifications? For that matter, how many (outside the Board of Trade) have any real knowledge of how a business operates?

judgement on many subjects may show much less when they find themselves—often with no training or preparation whatever—confronted with issues of economic policy. Most of us believe that we have good judgement,[1] but all of us would admit that it is better on some subjects than on others.

Third, it is clear that there is quite a wide dispersion of abilities within the ranks of those who regard themselves as economists, just as there is in a specialized profession such as accountancy or architecture. Our argument does not however depend on the view that all economists are competent.

Finally, there is an important factor, quite apart from the limitations of economics and economists, which must be taken into account. A higher standard of economic analysis can only affect policy if its results are found convincing and acceptable by ministers. This may not always be the case. The pricing and investment policies of nationalized industries seem to be an instance of this; for as Sir Robert Hall has observed,[2] 'it is obvious that the public, which in the last resort controls the government, does not in general think that publicly owned enterprises should necessarily be run on economic or business principles'.[3] But again this factor should not be overemphasized. Governments have been ready in the past to risk unpopularity, as, for example, when the food subsidies were abolished. Moreover, there is evidence that ministers have been willing to accept bad economic advice, and it would be unrealistically cynical to suppose that they accepted it merely because it was bad.

To sum up, our argument depends only on the assumption that the analysis of economic questions requires a rather specialized talent, and that the ability to deal with them sensibly and intelligently is generally increased by a training in economics and by experience of applied economic research. There is nothing utopian or paradoxical in this. As we have seen, however, much of present British administrative practice is based on a tacit assumption to the contrary, with results that are plainly unsatisfactory. We must now consider what might be done about this.

6. Some Suggested Reforms

We may start by repeating that the problem should not be thought of in terms of the Treasury alone. This is not only because some economic issues may remain intradepartmental, and because in others the individual departments will generally have both primary responsibility and prior

[1] Together of course with good taste and a sense of humour.

[2] *Oxford Economic Papers*, op. cit., p. 125.

[3] Though the need for economic analysis and advice, within the industries and departments concerned, is in no way diminished if it is decided that nationalized industries should not be run on normal commercial lines.

knowledge. A further reason is that departments do not usually regard the Treasury as disinterested. On most interdepartmental committees, the Treasury has a dual role: to control and minimize government expenditure, and to lay down broad economic policies. These functions are quite different, but in interdepartmental discussion the distinction is not always kept clear in the minds of those taking part. Most departmental officials are used to dealing with the Treasury in its first role only, and have spent much of their working lives in determined though amicable conflict with it. Thus even if the Treasury Divisions concerned with economic affairs were staffed with professionally qualified economic *Übermenschen*, who were also brilliant administrators and skilled diplomats, their opinions on economic questions would not normally be taken as impartial.

It is therefore not enough to strengthen the Economic Section, as some have suggested—though this is certainly desirable, particularly with respect to more senior posts. Any reform should be a general one, which affects all those departments which are concerned with issues of economic policy.

The main ingredients of reform are simple: there should be more economic posts, and more officials whose competence in dealing with economic questions and arguments has been tested and developed. The precise way in which these aims should be achieved is not so straightforward, but some general points can usefully be made.

First, each of the economic departments should have an economic section or division. These should normally be small; but they should be headed in each case by an official of fairly senior rank, since otherwise they will have no influence. They should be mainly but not entirely staffed by people with economic qualifications, who think of themselves as economists.

Second, a conscious attempt should be made to increase the number of existing officials, as also the number of future entrants into the administrative grade, who are competent to deal with economic issues and arguments. This will entail both formal training and an assessment of its results. Further, the practice of placing departmental officials in economic posts, as a routine though temporary phase of their career, should be abandoned. Here also a more careful assessment of performance is needed. This need not be a particularly difficult or invidious matter: the idea that different people have different interests and capacities is after all generally accepted, and most large organizations have adapted their methods of selection and training accordingly.

As a corollary of these two changes, the number of posts in the economist class should be considerably increased. Moreover, it should become possible —as at present it is not—for members of this class to become established permanent officials in the ordinary way, instead of being offered only contract terms. As things are now, with the prospect of only temporary

employment and with the very uncertain chances of promotion (if only because of the pathetically small number of posts available), it is impossible to recommend a graduate of ability and ambition to enter the economist class if he has the alternative of becoming an administrative civil servant.

Thus the objective should be a dual one: to increase both the number of economists who are civil servants, and the number of civil servants who are economists. The first requires that more professional economists should be brought from outside into departments,[1] either full-time for a period of a few years, or (where this is practicable) on a part-time basis. The second requires a deliberate attempt to increase the number of civil servants who have had an economic training, to enable those who have the necessary interests and aptitudes to acquire specialized experience, and to ensure that they occupy the posts which carry economic responsibilities to the exclusion of unqualified persons.[2]

Finally, it must be emphasized that the holders of economic posts in departments should not remain in one department permanently or indefinitely.[3] The whole purpose of reform would be defeated if their function became that of providing dubious technical arguments in favour of predetermined departmental policies. Wider experience is needed to preserve independence of mind, to avoid staleness, and to ensure that the viewpoint of other departments is properly appreciated. Every economist should spend a period in the Economic Section of the Treasury—or possibly in one of the other economic branches of it—and conversely every Treasury economist should have experience of some other economic department. It should not be difficult to strike the appropriate balance between giving people enough time to learn their job properly, and providing them with suitably varied experience.

It will be seen that the number of posts involved is not great. The need that we have outlined could be met by the creation of about thirty senior posts, with a corresponding number of more junior ones.[4] It is true that

[1] A procedure which incidentally is likely to be of value to the economists as well as the departments concerned.

[2] At present almost no attention is given to training or instruction in economics, even for those who are employed in departments—such as the Treasury—where it is almost certain that they will sooner or later find themselves dealing with economic issues. The Foreign Office, however, provides a short course in economics which is taken by all new entrants. This is excellent so far as it goes, but it does not meet the need for a larger number of officials with very much higher qualifications.

[3] Similarly, there is no need for people to have to sign on as economists or administrators for life. Transfer should be made easy, and within limits even encouraged, though the necessity for a high degree of specialization must always be kept in mind.

[4] Not all of these would be new posts in the sense that more people would be employed. In many cases the change would consist of having the same job done by a different (and better-qualified) person. But genuinely new posts are also needed. Thus the implications of what is proposed for the status and promotion prospects of administrative civil servants would not be at all serious—especially when it is remembered that the reforms that are needed could only be carried out gradually.

difficulties of recruitment and of training mean that this objective could not be reached immediately; but given the will to reach it—which at present is lacking—it would certainly not be impracticable. It is ridiculous to argue that when, as we have seen, almost all government departments are frequently if not continuously concerned with issues of economic policy, there is no means of ensuring that a hundred or so officials, out of a total of over 4,000, have proved their competence to think in economic terms,[1] and are given the chance to make use of it.

In spite of what is said about them, difficulties of recruitment and personnel are not at present the main trouble. The fact that no progress whatever has been made over the past 10 or 15 years, in a period when the output of good economics graduates has been higher than ever before, and when the number of economic posts in business and the universities has increased considerably, is evidence that the chief obstacle to reform is a failure to recognize the existence of the problem.

[1] Though we must emphasize again that professional expertise may be largely wasted unless it goes with clarity, judgement, and a real understanding of, and sympathy with, the problems which confront administrators.

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AGRICULTURAL AND ECONOMIC DEVELOPMENT

Linked Public Works

By T. BALOGH

I

Even the most recent schemes or theoretical models of economic development tend to be based on the twin assumption that the productivity of agriculture cannot be increased except by investment using resources obtained from outside and, inversely, that the pace of industrialization is in some sense dependent on the extent to which supplies can be extracted from agriculture and the agricultural population, helped only by this 'outside' investment.

Agriculture in most of the poor countries is notoriously sluggish if not completely stagnant. This, indeed, is the main reason for the primeval poverty as it represents the greater part—up to 80–85 per cent.—of employment. The standard of life of the peasant is near or at starvation levels. There is thus, in this view, a double limitation on the pace of development, especially in democratic countries which, unlike the totalitarian systems, cannot exact the means of development from a poverty-stricken peasant.[1]

A drastic reform of taxation of the well-to-do urban classes is held to be one of the ways, if not the sole way, in which the deadlock could be broken.[2] This is, however, politically difficult in countries where political power is dependent on electoral success unless all-party agreement can be reached on such contentious issues. The consequent failure is said to explain the

[1] The savage repression which accompanied the First Five-Year Plan and the post-war reconstruction in Soviet Russia under Stalin, as well as the hardship which is exacted by the Chinese Communist system at present, is quoted in evidence for this view. Much of the undoubted cruelty and repression of both régimes had only a tenuous connexion with the problem of accumulation and investment. Such connexion it had was not necessarily inherent in the system but the result of historical accident: the First Five-Year Plan was undertaken simultaneously with the outbreak of the World Depression; reconstruction had to be carried out during the worst phases of the Cold War. In each case it was outside events and influences which resulted in an actual decrease of the standard of life having to be enforced. In the first instance it was the worsening of the terms of trade; in the second the mobilization which absorbed up to a third of the active male population. Had the rich peasant not been permitted to reap such high rewards in the just immediately preceding period, and had industrialization started with favourable rates of exchange, the outcome might have been very different. There has been no suggestion, even among students who would not withhold such suspicions, that the Chinese industrialization plans have involved a cut in consumption, especially among the agricultural population, though evidence about the extent of the increase is conflicting.

[2] Cf., for example, the Introduction of the Report by Mr. N. Kaldor on Indian Tax Reform, p. 1.

ill-success in most underdeveloped areas of the world in starting a self-sustained growth embracing the whole of the economy and not merely some small sector, in which foreign capitalists are interested for the sake of supplying foreign markets.

In the following note I shall try to show that neither of these assumptions is correct and that, therefore, a great deal of the theoretical work which proceeds from them will lead to conclusions which might be inimical to the most effective mobilization of the potential economic power of underdeveloped areas outside the Soviet orbit. Such misapprehension might have fatal effects on the power equation between East and West.

II

The most important brake and limit on the potentional expansion in productive activity in underdeveloped areas is represented by the defective operational framework of agriculture.[1] With few exceptions, represented by a few imaginative landlords in Spain and some of the French settlers in North Africa and probably a few, often foreign, enterprises in other countries, land, whether held in vast latifundia or broken smallholdings, is incapable of giving adequate returns.

The insufficiency of the agricultural framework might be due to a number of reasons and take various forms. Models of, or plans for, economic growth which do not take due account of the existence of these hindrances to economic development are likely to go awry even if in Keynesian terms 'savings' (including taxation) and investment seem to balance. Thus in underdeveloped areas there are reasons, additional to those in fully mature industrial countries,[2] to make uncertain the applicability of the simple Keynesian analysis. *Institutional reforms* eliminating these hindrances, or at least modifying and improving the defective agricultural framework, would seem as indispensable as *direct controls* which can discriminatingly deal with certain acute bottlenecks, without having to cut income.

The great dormant potentialities of these improvements should be emphasized: they probably represent by far the most hopeful avenue of development, both in respect to the utilization of the vast idle manpower of all these countries, and at the same time also as one of the most fruitful and productive ways of employing scarce capital resources. They are well demonstrated by the amazing achievement of the Yugoslav State farms,

[1] Cf. F.A.O. Mediterranean Development Project, Rome, 1959.

[2] Such as the variability of the propensity to consume, partly because of the volatility of stocks, partly because of the new instability of the consumption of durable goods and, finally, as a result of the tax measures themselves. The attempts of Labour Chancellors to base economic planning in Britain in 1947–51 on simple Keynesian analysis (evidenced typically in the introductory note to the Economic Survey of 1947) failed conspicuously and contributed to discrediting the idea of planning.

based on relatively small expenditure of capital in terms of technical knowledge, implements, seed, and fertilizers. Nothing could be more promising than the fact that these farms were in relative terms *more* successful in resisting bad, than making use of good, weather. The contrast with the productive performance of individual smallholding peasants is painful.

In the case of the vast feudal or tribal landholdings exemplified from Spain and Morocco to Iraq, Persia or even farther east, landowners have no interest in improving the land. Their interest is to be able to derive an income with as little trouble from, and subject to as little fraud by their tenants or farm workers as possible. Thus in a large part of the Afro/Eurasian area, as well as of South America, there is a heavy concentration on crops or animals needing relatively little supervision and enabling the holder to absent himself for the maximum of time. This is so whether the owner works his estate with farm workers or lets it out in small fractional units to share croppers. The political desire to keep the peasantry from becoming too knowledgeable contributes to the stability of this anachronistic set-up. As Professor Dumont has conclusively demonstrated,[1] in these cases land-reform dividing the vast estates far from being merely a welfare measure, is necessary from a *purely economic point of view* in order to create incentive to land improvement and more intensive cultivation on the smaller area which remains to the estate owner who will want to retain his accustomed standards. The problem in some cases will be posed by the organization of the surrendered area into viable units and the supply of implements and technical knowledge. One possible solution could be found in the formation of compulsory cooperatives on the model of the Gezira scheme, with a closely supervised system of cropping and cultivation pattern. This has been the policy followed by Egypt. The success will, as in the Gezira, depend on the training of adequate technical supervisory staffs and on obtaining willing co-operation of the peasants.

In a number of areas the latifundist does not himself work his land. He lets it out at varying—mostly extortionate—terms, terms which have steadily worsened against the peasant as the pressure on land increased with growing numbers. Thus the large ownership unit is *de facto* already broken up into small operational units. Iraq before the recent revolution was a particularly crass example of this type of land tenure. Neither the landlord nor the peasant has much incentive to improve agricultural productivity, though the basic unified ownership would permit the introduction of large-scale intensive, especially labour intensive, production methods. This is prevented by the fact that the owner is content with his income, the magnitude of which depends not on efficiency but on inequality of ownership. In these cases again the maintenance of the traditional system

[1] *World Agricultural Problems* to be published in 1960 by Plon, Paris.

of land tenure, and its very inequality, is the main obstacle against full mobilization of resources.[1]

In those areas where estates are broken into smallholdings, of which India presents an especially difficult case, the problem is even harder to solve. The operational unit is unfit for much improvement in the technique of exploitation. The partitioning of ownership hinders improvements, as single owners are incapable of dealing with technical problems such as irrigation or drainage. The elimination of the larger feudal landlords—the zamindars and taluqdars—left in being a vast agglomeration of landlords, or even hierarchy of landlords, often absentee. These 'landlords' or lease owners, or even the owners of the 'superior' rights might themselves be miserably poor.[2] Their ownership rights, together with social tradition (connected with religion) magnify the operational defects of the system. The existence of a large licensed and subsidized class of leisured poor, prevented by status or caste considerations from working renders economic mobilization difficult. The great number of these 'landlords/merchants/moneylenders' confers upon them an important voting power in a democratic system magnified by their oppressive influence on the lower strata of the village society. It is the land tenure and traditional behaviour which creates underemployment, *quasi*-licensed and subsidized through the rules of the land tenure. The exploitation of the actual tiller is thus made more unbearably onerous as the insufficient produce has to be divided among a larger number.

Finally, it should be added that in the absence of a large-scale reorganization, piecemeal attempts at improvement might not merely not be effective but actually do more harm than good. Thus irrigation without drainage in very large parts of the Eurasian continent poisons the soil by salting; the provision of fertilizers without water and drainage might result in a total failure of crops through burning, while some poor crops might survive without fertilizers even under the same conditions. The peasants' resistance to new techniques is therefore not as irrational as is often thought.

III

In consequence of these deeply imbedded impediments due to the traditional system of land tenure and social arrangements, there is an immense amount of underemployment. It does not seem exaggerated to claim that

[1] Traditionally 'Western' economists seem to equate inequality and growth. Cf., for example, Prof. Kindleberger, *Development*, p. 225.

[2] Cf. V. M. Dandekar and G. J. Khudanpur, *Working of Bombay Tenancy Act 1948*, Gokhale Institute, Poona, 1957. Their social superiority, however, has prevented effective land reform. Often they were able to get their tenants to renounce the new rights conferred on the cultivators. They frequently combine the function of landlord, merchant, and moneylender and exact an extortionate price for each.

success in planning development for self-sustaining economic growth will mainly depend on the success achieved in mobilizing this reserve—practically the sole hidden asset of most underdeveloped areas. Given the overwhelming numerical preponderance of the agricultural sector in the whole economy of these countries, a decisive increase in its productivity could make all the difference. A failure in this sector would condemn the greatest success on the industrial front alone to relative ineffectiveness for long periods, as in Soviet Russia, in lifting average productivity and thus the standard of life. Foreign aid, invaluable as it may be, is no substitute for such effective mobilization. Indeed its value might mainly consist in permitting this mobilization to take effect over time, thus reducing the scope and severity of the compulsive measures needed for any given achievement.

The magnitude of the possible effect of a successful mobilization of idle manpower has been consistently underestimated. This failure of appreciation has been mainly due to the assumptions about the shape which development programmes ought to take. It has been implicitly assumed that development would, in the main, have to take the form of industrial growth absorbing the unemployed or underemployed of the rural areas, of a removal of surplus labour from land. Elaborate calculations have been made, therefore, to determine how much 'true' underemployment existed. This was defined as that part of the labour force, the removal of which would not affect output. As primitive agriculture is highly seasonal in character, this severely limits the availability of labour. In the context in which some of these calculations were made (e.g. Professor Rosenstein-Rodan, for Southern Italy) these assumptions were legitimate. Nor can there be any doubt that the process reducing the absolute numbers on the land and not merely their proportion in total employment is an essential part of the effort at increasing national income. What is not justified is to assume that this is to be the main or sole means of rural improvement. Two considerations especially have been, I think, consistently neglected in shaping these programmes.[1]

The first is that the demand for labour in modernized agriculture based on irrigation increases very rapidly, while even after the removal of the 'true underemployed' the seasonal character of the traditional methods of agriculture would leave unemployment which can be estimated between one-third and one-half of the remaining labour force. Thus productivity in agriculture would still remain so low and so inflexible as to render any development planning difficult, if not hopeless, because of the potential

[1] This neglect, however, has not been permitted to mar the programmes elaborated for the Mediterranean countries by F.A.O. Cf. Mediterranean Development Project—Interim Report, 1957, Final Report, 1959.

inflationary threat if a programme of expansion is superimposed on this type of economic system.

The second consideration was that agriculture presented at one and the same time not merely an investment opportunity with exceedingly high marginal productivity, which was not utilized only because of the structural and institutional impediments to development, but one which could use manpower for intensive methods of construction. Thus there was here a chance for the seasonal utilization of unemployed rural labour, the only reserve and at the same time the greatest curse of underemployed areas. Thus fuller employment could be attained without incurring the extra cost of transportation and the necessary urban rehousing investment which is so terrible an obstacle to national economic planning in these areas. At the same time the capital investment in dams, irrigation canals, drainage, and roads would increase permanent employment opportunities and productivity.

The problem was exhaustively discussed in the Interim Report of the F.A.O. Mediterranean Project:[1]

> What is required is an overall plan whose constituent elements are to be determined specifically for each country, which will in the initial stages prove an impetus to balanced growth, partly through long-term investment and partly through stimulus to productive investment in agriculture and industry. The public works programmes which lead to the creation of social overhead capital in these countries, are necessary to bridge gaps due to the immobility and lack of adaptability of labour. They can also prevent a further worsening of the distribution of income through increased unemployment due to mechanisation. At the same time they can generate an increase in demand which local production would find it easier to meet than if the expansion were directed mainly to higher incomes. Only in this way can the bottlenecks discussed in the previous section which threaten to frustrate any less comprehensive plan, be overcome.
>
> The need for such programmes is particularly acute in rural areas, where a flexible programme is required which will still permit the seasonal peak demand for agricultural labour to be met, but which will improve conditions of the labourers. The programme will of course be devised to contribute to a change in the systems of farming which will alleviate the violence of fluctuations in labour requirements.
>
> It may well be asked what are the aims of a policy of enlarged public works, especially in rural areas. The argument that what underdeveloped areas need is balanced development has been put forward by a number of eminent economists and has received growing assent. It might be argued in this particular case that the policy of rural public works would upset balanced development as it creates a partial new level of incomes not corresponding to the actual productivity. Instead of balanced growth, imbalance would thus have been created.
>
> But in order to obtain such a smooth development it is necessary either to have a broad stratum of entrepreneurs waiting to make use of the slightest opportunity whose energy and enterprise can be unleashed as soon as finance and markets are provided. The finance would be supplied either through foreign help or by mobilising internal resources. The markets would be provided by the simultaneous establish-

[1] Rome, 1957. Prepared by a team headed by the author. I must acknowledge my indebtedness especially to Mr. Ergas, Mr. Holland, and Professor Nagi. Paras. 111–12, 118–24. The strategy of purposive unbalance has since received impressive support.

ment of a number of new firms which lift each others' demands to a new high level. Or, if such pervasive entrepreneurial ability is not available, the State could undertake all investment directly. If it did, then again balanced growth could be achieved.

But in many countries of the Mediterranean there is no reservoir of entrepreneurial and technical skills which can be tapped merely by supplying finance and markets: in these circumstances an initial State investment programme may do little to stimulate a response in terms of productive investment: and its effects on income may then result in increased imports only, and be thus dissipated in the first round; and if imports are controlled they would give rise to speculative upward pressure on prices. On the other hand the State would not take sole responsibility for all expansion of productive investment.

What is needed, therefore, is a stimulus which itself strengthens the incentives to productive change, which are now inadequate and at the same time provides markets for the resulting increased productive capacity. This can be accomplished by the creation of incomes, which is not necessarily synonymous with the provision of employment. The expansion of employment is a major element in the programme, however, in so far as it is essential to the creation of demand. Thus a rather broad sector must be chosen as a spearhead of change because the process of adaptation of the other sectors will take time, and unless the spearhead is large enough and sensitive enough to sustain the expansion during this transition period, the relative sluggishness of the rest of the economy might not be overcome. On the other hand, great care must be exercised that the increase in incomes should not get too much out of line with the increase in productive capacity, for otherwise the process might be stifled by a more cumulative increase in prices. The great difficulties in the way of expanding agricultural output have been discussed. To the social and technical requirements for speeding up progress in this essential sector we shall return below. If both dangers can be avoided, and this should not prove difficult, the new direct stimulus to private and public investment in the framework of a plan should be able to create in the end a new balance which will arise corresponding to a higher level of demand and productivity. In the recent past the development in the more advanced countries of automobiles opened a new era of suburban living and stimulated road and house building and the development of innumerable consumer durables. In the more distant past the application of electricity with its vast effect on the location of industry furnishes a good example of how such creative imbalance works without conscious planning. Such automatic growth cannot be expected in many of the under-developed areas.

Thus in the circumstances of the Mediterranean region a conscious effort of creating imbalance and then stimulating the response towards the establishment of a new balance on a higher level is needed. Gradually, industrial growth would absorb the people who might be set free, though the intensification of agriculture should also increase agricultural employment at a higher level of productivity. And steps must be taken to ensure that the choice of techniques should not create unnecessary unemployment.

The question then arises which of the sectors would be most likely to generate the sort of impulse which will result in cumulative response.

No general answer can be given. The social conditions in all countries are so different that the tactic has to be adapted to the varying conditions. Certain general rules can be laid down.

Strategic action will yield best results if the pressure it creates (e.g. through shortage) will act on social groups and in sectors which are least likely to respond negatively, that is with speculative withholding of supplies, but which, on the contrary, are likely to prove potentially elastic. In particular investment in infrastructure, e.g. railways and communications, which would stimulate new investment might be an important way of loosening the constriction of stagnation. Even if a

conscious effort is made on a broad front at lifting the economy out of its stagnation, in contrast to the previous examples of spontaneous but disjointed growth (as in Morocco, Syria and Iraq)—the difficulties in the way of success will prove considerable.

We concluded that development planning would have to base itself on creating in strategic sectors a 'creative' unbalance, a new level of demand, while at the same time widening the basic bottleneck of agricultural production.[1] In peasant, and even more in tribal, societies it is difficult to introduce on a voluntary basis of popular participation far-reaching changes, the benefits of which are not apparent sufficiently soon to make their causal connexion unmistakably evident. Yet it is obvious that the only way in which the large mass of idle manpower can effectively be used without scarce and costly implements (or other scarce materials) is agricultural improvement.

IV

The Chinese Communists—unlike the Soviet leaders at the time of the inauguration of the First Five-Year Plan—clearly recognized this fact. Their answer was—after several different starts which were soon abandoned[2]—an increasingly wide and tight organization of the peasant masses, first in work teams, subsequently in the so-called communes. These permitted the mobilization of the workless without disrupting their nexus to their localities, which were obliged to continue to maintain them. This performed the vital task of keeping consumption level until production had increased. They were used for creating, without any modern capital equipment, *highly capital intensive works*, yielding in most part phenomenal returns, such as dams, irrigation, drainage, canals, non-chemical fertilizer production and social substructure investment, such as roads, schools, and

[1] An alternative has been elaborated by Mr. Sushil Dey, when Development Commissioner in Western Bengal (see his book *Industrial Development—A New Approach*, Calcutta, 1955). It had striking success in the province so long as it was pressed energetically (cf. *The Village Exchange—A Programme for Industrial Extension in Western Bengal* by the Development Department of the Government of West Bengal, Calcutta, 1954). This approach encourages production by the villagers of food and simple handicraft products for exchange through special village centres. Thus additional products are created beyond the level which the village could buy from the organized market sector. The saving in purchases from the town was to be used for purchase of capital goods. The scheme has been likened to the combination of discrimination, internal liberalization and aid which was adopted by western Europe after the war to get production going without having to restrict production as a result of inability to balance dollar imports and exports. If pushed with vigour it might give an invaluable impetus to community development on a primitive level, and thus smooth the path for voluntary popular participation in more elaborate schemes. The difficulty might seem in the transition when peasants have to be persuaded to buy and use modern tools (including fertilizers). Its advantage is that the improvement is simultaneous with, and a consequence of, individual effort. This has great moral impact.

[2] T. J. Hughes and P. E. J. Lund, *The Economic Development of Communist China 1949–1958*, Oxford, 1959, esp. pp. 35–71.

hospitals, as well as industrial ventures (often of an extravagantly unsuitable type soon to be abandoned).

If we bear in mind that unemployment must have amounted to at least 150 million man years in pre-revolutionary China, the colossal size of the potential capital investment becomes apparent. No doubt a great deal was misdirected. No doubt a lot could have been better allocated, and its effectiveness improved by different techniques. What should be remembered is that it was a *net* addition, *potentially of the order of magnitude of more than a quarter of the national income*, and a large part of it probably with a capital-output ratio possibly as low as 2 or below. The mechanism of the expansion is not difficult to understand. It is dependent on complete ruthlessness, and either total compulsion or fanatical enthusiasm. It is, needless to say, also dependent on the absolute liquidation of legal obstacles in the way of the physical reorganization of production, especially the removal of the integumen of obsolete land tenure systems, and all traditional social behaviour patterns inimical to increases in productivity.

V

In democratic countries such direct mobilization of rural manpower is hardly feasible. The only direct compulsion which could be contemplated is general service in the army or in special labour corps for education and the undertaking of investment. Even if no money were paid, such organization of labour would disrupt the connexion between the individual and his rural base. This means that his maintenance would fall on the State, an appreciable burden which necessarily limits such direct methods outside the village or district framework.

An alternative would be to organize community development on the basis of liability for a number of days' service from which individuals could free themselves by payment of sufficient tax to maintain a worker. In some countries possibly the introduction of a poll tax might be easier, coupled with the alternative to serve a number of days in work teams.

Beyond such devices to utilize labour service, the mass of the population would have to be provided with appreciable immediate incentives, making them eager to try out new methods of rural organization and production, coupled with a drastic reform of obsolete land tenure systems. As a minimum the formation of productive co-operatives has to be envisaged which can, with due compensation, possibly guaranteed by the government, take over rights over land which in scattered hands, or in the hands of stagnant latifundia owners prevent a rational solution of technical problems of agricultural production.[1] Fortunately compensation is not

[1] The Third Indian Plan, which came to hand when this had been completed, envisages some such reform.

prohibitive, as present landowner rights are based on (as they are also responsible for) an extraordinarily low production. Rural reorganization might easily enable a doubling, trebling, or more, of yields.[1] Thus it is economically feasible to pay adequate compensation for existing rights without overburdening the State. This should facilitate reform even in countries where there was no revolution.

In cases where a once for all large-scale land reform is not possible an alternative would be[1] to impose a progressive land tax on family holdings. This tax should be based on a (high) average yield in the district according to each class of land (irrigated, dry-farmed and varying soil structure). This would force larger holdings to consider whether to improve their farming methods or to sell. The State through the co-operatives ought to reserve the right of first refusal to acquire any land sold. This would reduce the mass of land to be dealt with but increase the difficulty of rational land use reform, as the co-operative holdings would be scattered and no rational production plan could be imposed.

The organization of co-operatives would enable the rational use of land and water, and the carrying through of infra-structure and agricultural investment. The story of the Gezira scheme shows what can be accomplished through adequate organization, education, and leadership in assimilating scientific methods and obtaining corresponding yield in an originally primitive environment within a relatively short period. The first requirement would be the training of inspectors who would take charge of such co-operatives, as it is essential to give a new leadership in the villages, a leadership divorced from existing feudal or tribal restrictiveness. This has been shown to be far less time consuming or educationally difficult than was thought even a short time ago.[2]

VI

Resistance against innovation has been fierce. It might be overcome if the reorganization itself is made immediately attractive.

Two parallel lines of action would seem to be needed. The first is the organization of marketing boards so as to cut out the usury-dealings of merchants. Land reform in a number of Asiatic countries (including some parts of India) came to naught because the landlord/merchant/money-lender remained in effective control of the peasant. As the West African

[1] Cf. F.A.O. Country Report for Iraq, Rome, 1959.

[2] There is little doubt that despite the shocking neglect of agricultural training colleges by the British and even the Indian Government there is more expertise at hand than is being made use of at present. The professional unemployment acts as a terrible deterrent to progress. Cf. F. Little, The Strategy of Economic Development in India. *National Institute Bulletin*, May, 1960.

Marketing Boards have shown, the most important function of a reform of marketing is to enable the peasant in fact to receive something resembling the current consumer price for his produce and not a price distorted by interest deductions or by deductions administered in view of possible seasonal fluctuations. The net effect on consumption of such increase in peasant income would be slight as the landlord/merchant did not save much.[1]

The second line of action is to assure the peasant some immediate increase in his income through the co-operative, but in such a way as to minimize inflationary dangers by increasing production. This could be achieved by *linking public works in infra-structure investment to rural reorganization schemes and by channelling paid employment through the new co-operative organization.* Thus memberships of co-operatives could and would be made immediately profitable because peasants would only receive employment and income if they joined the co-operative.[2]

Most of the *linked public* works could, as in China, represent undertakings which do not need implements or material. The wages paid need be no more than the *average* income of peasants and landlords from their unreformed holdings. This is of course far below the urban wage-rates and constitute one of the main reasons for the existing maldistribution of resources, causing an over-concentration on primary production by creating a large-scale divergence between social and private cost in industry to the detriment of the terms of trade and the average real productivity of the country.[3] Thus the 'monetary' capital-output ratio in this type of public works would be even more favourable than it would be in 'real social' terms because the money wage cost is far below that ruling in industry. Accordingly the threat of inflationary consequences would be less.

Another, hardly less important, argument strengthens this conclusion. There is in most of these countries a substantial unused productive capacity for handicraft or primitive industry; the products of which cannot compete qualitatively with large-scale industry. As public works would bring purchasing power to the village population which is not accustomed to buy quality products it would be fairly simple to divert this purchasing power towards these products.[4] The arguments that redistribution of purchasing power inevitably leads to an increase in demand and thus

[1] And the increase in the peasant's income might be canalized towards the underemployed handicrafts. Cf. below.

[2] The organization of Egyptian co-operatives in the areas affected by land reform was compulsory. The grant of additional incentives might be wise.

[3] Cf. my article 'Welfare and Freer Trade', *Economic Journal*, 1951, pp. 76–80, and for an estimate of the degree of distortion the two F.A.O. Country Reports on Iraq, Rome, 1957 and 1959, for which I was responsible.

[4] Possibly in conjunction with the village exchange scheme initiated by Mr. S. K. Dey already mentioned (cf. above, note 1, p. 34).

to a worsening of the balance of payments[1] is incorrect in a large number of underdeveloped countries. Not only do the rich not save much, if at all, their demand is concentrated on foreign products and products with high import-content. Redistribution towards the lower income classes might actually help rather than hinder the achievements of balance of payments equilibrium.

Most of these public works can be suitably timed to coincide with the seasonal slack in rural areas. It can, therefore, make use of workers which could not, without costly replacement in terms of machines, be utilized in industrial development. Moreover the output created is a net gain in the additional sense that it does not require large and costly additions to urban capital, houses, water, &c., for its materialization. This again cuts its cost and increases its relative productivity.

A programme of rural works could, moreover, help in redressing the balance in development programmes in favour of giving employment. This is the more essential as it is likely that, mainly because of the balance of payments consideration, the non-rural programme will have to be concentrated on basic industries producing intermediate products and capital goods, which, because of technical considerations, are likely to be capital intensive in the sense of providing relatively few employment opportunities.

Rural reorganization, if linked with public works programmes, might be accepted with less resistance, as it might help with the initial stages by assuring due compensation for old rights. Their being channelled through co-operatives (together with the marginal increase in income) might weaken the stranglehold of tribal or feudal relations which have in the past widely prevented—even in India—the effectiveness of community development schemes.[2] A new source of income placed into the hand of 'outsiders' might—as in the Gezira and in some regions of Egypt—provide that loosening of the impediments to rural reform and progress which is essential if a new deal is to be introduced.

Linked public works programmes thus can fulfil an essential role in a plan for integral development. They could be useful to achieve social change without prior violence and subsequent compulsion. They might speed up development and reduce the danger of eventual failure when foreign aid is diminished. Conversely, they probably represent one of the most effective uses of foreign aid. Together with technical assistance they might become the main weapon helping to eliminate the formidable food-bottleneck which constricts expansion, and, through the threat of inflation, impedes action and prevents growth. They might provide the frame-

[1] Cf., for example, Prof. Kindleberger, *Development*, p. 229.

[2] For example the Report of the U.N. Committee on the Evaluation of Community Development Schemes, New York, 1959, F.A.O./IND/31.

work in which technical knowledge and administrative capacity can be infused into the countryside. Thus the development impulse given to the original industrial sector might receive an adequate and expansive response instead of either causing inflationary pressure, hoarding and viciously increasing imbalance, or slowly petering out. Given the inevitably accelerating growth of population they might make the difference between success and failure of efforts to achieve reconstruction without revolution. A failure of rural reorganization, should Chinese reconstruction succeed, would spell an inevitable victory for the totalitarian approach.

VII

It might be asked why such schemes have not been adopted when their advantages are so obvious. The answer to this question is not difficult. It lies partly in the resistance of vested interests which feel menaced, partly in the shortage of manpower to which leadership could be entrusted. These two factors, however important they may be, do not explain the extent of the failure. This cannot be really understood without realizing that instead of *channelling foreign aid towards co-operatives, and insisting on their accelerated organization, the administrators of foreign aid resolutely set their faces against them.*

In some cases the use of resources derived from foreign aid through co-operatives (especially of bilateral aid) was prohibited, instead of being made a condition of the grant. This discrimination is presumably due to the fact that the Soviet system also makes use of this form of agricultural organization. The difference in the content is ignored because of the similarity of form, and the resistance of the feudal vested interests, instead of being combatted by the foreign experts, is strengthened.

Without radical rethinking of the strategy and tactics of international aid it is difficult to avoid pessimism about the chances of success in non-Soviet areas promoting self-sustained growth. The use of foreign resources without reorganization would merely temporarily raise rural incomes but (as the case of Iraq prior to 1958 shows conclusively) would not generate a multiple expansion of national income.[1] Once disappointment sets in and the flow of aid diminishes, little permanent improvement would be left over from the initial impetus. Only if the mass of the rural population can be identified with change, and develop a new drive towards greater co-operative effort, could success be hoped for.[2] Incidentally only

[1] This has been demonstrated in Iraq, despite the extremely favourable conditions for successful development: abundance of foreign income, water, and land. Cf. F.A.O. Iraq Country Report, op. cit.

[2] Thus it would be wrong to think that a diversion of industrial towards agricultural investment without basic reorganization could bring about a radical improvement in production (cf., for example, *Report on India's Food Crisis and Steps to Meet It*, Ford Foundation Agricultural Team, 1959).

cooperative organization and marketing could prevent an increase in food production from generating an exactly corresponding income and thus exerting increased demand on productive capacity.[1] Thus an early reversal of the policy of governments in control of aid resources which continue to oppose the formation of co-operatives is urgently needed.

VIII

A word needs to be said about proposals which are based on the belief that fiscal measures, a general tax reform, would render more direct reform, especially agricultural reform, unnecessary. In this view the rate of progress and even of providing new employment depends on the 'ability and willingness to tax' which is taken to be synonymous with 'the Government's willingness or ability to redistribute consumption sufficiently in favour of the newly or more intensively employed'.[2]

If this statement of the case is to mean that tax measures of a sufficient harshness must be taken up to a point where a redistribution of consumption is achieved, it is self-evident but not very helpful. If it is to mean that taxes will bring about the equivalent decrease in consumption, and more especially in the consumption of certain goods in scarce supply, instead of causing unemployment among the producers of other, less necessary, articles, it is incorrect. As the bottleneck is food and certain specific products for which the demand is extremely stubborn, taxation might have to be a multiple of the monetary equivalent of the desired specific effect in terms of a redistribution of the consumption of these foods. Nor would it be safe to assume that the displaced producers of the unintended cuts in consumption (e.g. producers of silk saris or domestic servants) will be readily available for more useful work.

A further and not the least important objection against an exaggerated importance attached to the fiscal aspect of the problem of development is that the administration and enforcement of a complex tax reform, including capital, capital-gains, and expenditure taxes, would absorb a great deal of irreplaceable scarce skilled manpower. Not the least damage would be done by diverting entrepreneurial ability and drive from building up new enterprise to tax evasion. This manpower must be used for increasing production rather than any other purpose.

There can be no question whatever that a decisive increase in production would very much facilitate the extraction of additional supplies.[3] The

[1] But cf. above on the existence of unused productive capacity to meet increase in demand for simple goods.

[2] Little, loc. cit., p. 28.

[3] Professor Galbraith's belief to the contrary (*Affluent Society*, pp. 178–9 and 215) contradicts his own basic thesis, which I believe to be correct and important, that utility decreases as available supplies in general increase.

creation of a sufficient collective (budgetary) saving must come as a by-product of the organization of increased production. It is one thing to diminish the consumption of people, however ineffective and badly employed they are, and quite a different one to prevent their consumption from rising exactly in proportion to their productivity. This goes for the urban as much as for the rural sector, for rich and poor alike. In the case of the former, tax measures alone might prove extremely wasteful as their side effects might be grave without achieving specific cuts in consumption.

Even indirect taxes might lead to a cut of the consumption of goods which are useless from the viewpoint of sustaining effort through redistributing consumption but cause more or less useless unemployment. The more general the form of tax (e.g. income tax or expenditure tax) the greater the likelihood of its causing unnecessary cuts. It is strange that the lessons of war-economics should have been forgotten so soon, or the idea have got around that a country in the first stages of development from abysmal poverty is anything but a siege economy. If the investment plan is to be carried through with the least difficulty, political and economic, the needed diversion of supplies could only come through direct regulation of consumption.

In this connexion it should also be remembered that practically the only way in which rural supplies can effectively be mobilized is through co-operatives which organize marketing and can exact the taxes, while carrying out these duties. Inasmuch as the cultivators at present are oppressed by extortionate marketing practices, the weight of the taxes might not be felt by them but by the displaced merchants whose activities benefit no one but themselves. Thus tax collection becomes a by-product of the drive for higher production and the skilled administrators are not wasted on purely negative tasks in this vital sector. But unless the formation of co-operatives leads to a substantial increase in production an attempt to use them for taxation would result in a revulsion of feeling which would certainly prevent rapid development without compulsion of the utmost harshness. It explains the tribulations of co-operatives and the hatred with which they are regarded in the Soviet orbit. On the other hand the Yugoslav co-operative experiments with improved seeds, fertilizers, and cultivation techniques show equally conclusively the scope and rapidity of improvement.[1]

IX

Fortunately—and in complete contrast to the attitude with which the preparation of the Second Indian Five-Year Plan was received by the

[1] Cf. the Yugoslav experiment. It seems proven that large-scale scientific production results in dramatic rises in returns and that individual peasants are incapable of matching effort.

'Western' powers[1]—both the importance and the extent of the needs of the poor areas, and especially of India, are fully realized. There is, moreover, a large (and still growing) surplus in the 'West' of practically all those products for which demand might be expected to rise in the intermediate period of reform and reconstruction, prior to the rise in production and the establishment of an effective organization to handle the increase in crops. This, providentially, facilitates the policy of linked works. As rural reorganization would lead to a more rapid increase of output than could otherwise be contemplated, a more rapid use of the foreign food supplies might be permissible. Thus a shock-effect might be achieved, tempting rather than coercing peasants and 'landlords' to co-operate.

No illusions must be fostered about the difficulties which would face any government in implementing a programme of organizing a co-operative increase in production through linked public works. Traditional behaviour patterns are stubborn. They are stiffened by the existence of vested interests desperately anxious to prevent a diminution of their privileges, however miserable the absolute level of existence to which the system condemns even them. What might be claimed is that a 'linked' public works programme might sufficiently diminish the resistance to enable the successful launching of rural reform. Without such reform it is very questionable whether the best efforts on the industrial front will not prove insufficient to bear the increasing burden of a fast-growing population. If persuasion and incentive do not work, compulsion, however repellent, will prove inevitable.

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[1] Cf. *International Affairs*, 1955.

ALTERNATIVE PATTERNS OF GROWTH UNDER CONDITIONS OF STAGNANT EXPORT EARNINGS[1]

By K. N. RAJ and A. K. SEN

I

In the nineteenth century foreign trade played a vital role in the development of economies. While, on the one hand, it destroyed the traditional industries in countries like those of Asia, it opened up possibilities of expansion of a different sort through the growth of demand for primary products. However, since the turn of the century, even primary demand has not been keeping pace with the growth of advanced, industrial economies, and, therefore, this mechanism of growth transmission is now in, what Professor Nurkse has called, 'comparatively low gear'.[2] This is reflected today in the difficulty of many primary producing countries (excluding, of course, 'the oil countries') in even maintaining their export earnings in a world of expanding trade.

An alternative pattern of economic expansion is provided by the possibility of industrial exports in which some primary-producing countries could have a comparative advantage. These industries, however, traditionally form a substantial part of the economies of the advanced countries and, therefore, apart from the genuine difficulties which the new-comers may have in competing with the high-quality products of the former, there is also involved a problem of adjustment on the part of the advanced economies. Many of these countries, faced with competition in these products, have in fact tended to give protection to their traditional home industries. As Professor Nurkse has concluded, 'the development needs of the backward economies may demand a faster rate of adaptation than is likely to be practicable in the advanced economies'.[3]

The case for the industrialization of primary-producing countries, oriented primarily to their home markets, has been recognized on these grounds. We shall not go farther into this question but assume that a

[1] This paper is an expanded and slightly revised version of an article by us entitled 'Sectoral Models for Development Planning' published in *Arthaniti* (Calcutta University), vol. ii, no. ii, May 1959. The authors have benefitted from comments offered by Mr. W. B. Reddaway, Mr. G. D. N. Worswick, and Dr. K. A. Naqvi.

We are indebted to *Arthaniti* for their permission to use material they have published.

[2] Ragnar Nurkse, *Patterns of Trade and Development* (Stockholm, 1959), p. 27. The factors which have contributed to the lower rate of growth of primary demand are discussed on pp. 23–27. See also S. J. Patel, 'Export Prospects and Economic Growth: India', *The Economic Journal*, vol. lxix, Sept. 1959.

[3] Ibid., p. 41.

number of such countries today are not in a position to increase their export earnings—at any rate in the period relevant to the decisions that have to be taken now by them about their pattern of development. We shall, in fact, make the extreme assumption in this paper that there is no scope for increasing the earnings from exports.[1] This would highlight the particular features of this type of economic situation; the results obtained on the basis of this assumption can, of course, be suitably modified to take into account such possibilities of export promotion as may exist in any given case. In this paper we are primarily concerned with discussing the alternative patterns of development that are open to an economy in the situation indicated above and their implications for growth—a problem to which much attention has not so far been given, except by a few like Professor Mahalanobis in the context of India's Second Five-Year Plan.[2]

II

In growth models, the economy is divided normally into a number of sectors. The smaller the number of sectors, the easier is the model to handle, but the less realistic, given other things, the results are likely to be. A two-sector model of the Keynesian sort can be easily developed into a single growth model, as Harrod and Domar have done.[3] It is, however, difficult to draw policy conclusions from these, excepting those of a very general nature. On the other hand, models with input–output tables of individual commodities are very useful for planning policies, but even a (30 by 30) table, which is a modest size for such tables, is extremely difficult to handle. There is, therefore, some point in constructing some sectoral models falling in between the Keynesian aggregative system and models using detailed input–output tables. Professor Mahalanobis's four-sector model (with three types of consumer goods and one type of investment good) is an example of such a model.[4] However, while Professor

[1] We assume that the country in question is big enough to produce a sufficiently big demand to allow normal economies of large-scale production. For smaller countries the considerations outlined in this paper will be relevant only in so far as they form an economic union.

[2] It is obvious that, if all goods are equally exportable, the problem of internal resource allocation will be unaffected by the sort of consideration which we discuss in this paper. Criticizing the earlier version of this article, Mr. Jagdish Bhagwati has pointed out that 'given the same balance of payments elasticities of transformation of their exports [of different sectors] into imports, no difference is made, by the trade pattern obtaining, to the way in which the economist would have to approach the problem of resource allocation in any given open economy'. See his article on 'The Theory of International Trade', *The Indian Economic Journal*, vol. VIII, July 1960. Mr. Bhagwati's contention is totally unexceptionable *given* the assumption on which it is based. In the light of the empirical observations referred to above, this appears to be, however, an unsatisfactory way of dealing with the issues that many developing countries face today.

[3] R. F. Harrod, *Towards a Dynamic Economics* (London, 1952); E. D. Domar, *Essays on Economic Growth* (New York, 1957).

[4] P. C. Mahalanobis, 'The Approach of Operational Research to Planning in India', *Sankhya*, Dec. 1955.

Mahalanobis classifies consumer goods into three types, he is content with only one broad category of investment (K) goods. For certain growth problems, it is useful to distinguish between investment goods which produce consumer goods and investment goods which produce investment goods. We shall discuss the significance of this distinction later in this paper. A second feature that strikes one is the lack of any provision for intermediate goods in the sectoral structure of these models.[1] It is a little dubious to put commodities like iron and steel in the investment goods bracket. While it is true that many iron and steel products cannot be consumed immediately, the relationship of iron and steel with the final output is not one of stock and flow. A car manufacturing machine (stock) produces a certain quantity (flow) of motor-cars per year. On the other hand, the *steel* requirement of the flow of output is in the nature of a flow itself and for each new motor-car one needs new quantities of steel. One is, therefore, somewhat doubtful about the usefulness of putting the iron and steel industry in the investment goods sector, a practice that is not uncommon.[2] Steel is a semi-finished good and can just as easily be used for the consumer goods flow as for the investment goods production.

In the light of this, we suggest a four-sector classification of the economy that may be useful for some growth problems. The classification is, of course, not watertight and it will be easy to find borderline cases.[3]

We may illustrate the relationship between these categories in terms of a set of simple models which will also illustrate the point of this classification. We are ignoring here the time-lags involved in gestation. This problem will be discussed later on.

[1] See, in this connexion, Professor Domar's criticism of the Soviet economist Fel'dman's model of growth, *Essays on Economic Growth*, op. cit., pp. 227.

[2] See, for example, the *Draft Plan Frame* of India's Second Five-Year Plan.

[3] What are shown in each sector are the final products of the sector. The division of the economy by sectors, based on stages of production, is admittedly somewhat arbitrary. The difficulties of classification are probably most serious for sector R. Since goods change hands several times between different industries before they emerge as finished products, and since some of these are only a little removed from the final stage (e.g. bakery, tailoring), it is not always clear how they should be classified. The classification is bound to be, to a certain extent, arbitrary. In a private communication to us on the earlier version of this paper, Mr. Reddaway has suggested the following criteria for classifying an industry in the intermediate-goods sector:

'(a) Its output should be predominantly bought for current use in other industries.

(b) If the output nearly all goes to one or two industries, the early stage must present markedly different production problems (e.g. growing raw cotton, as against converting it into cloth), so that it is quite likely to get "out of balance" with its consuming industry (including the extreme case where a country has developed one stage but not the other).

(c) If the output goes to a wide range of industries, the case for putting the industry in the R sector is strong—more especially if the consuming industries are partly C, partly R, and partly I. Coal or electric power are excellent examples—even though final consumers buy part of their output.'

We find this method of classification very helpful, though, of course, the element of judgement that is involved in practice cannot be completely eliminated by any set of criteria.

Sector C	*Sector I*	*Sector R*	*Sector M*
Consumer goods (e.g. cotton textiles, sugar, foodgrains, railway passenger service, electric fans)	*Investment goods for consumer goods* (e.g. textile machinery, sugar machinery, passenger coaches)	*Raw material and intermediate goods* (e.g. steel, cement, coal, fertilizers, railway goods service)	*Investment goods for sectors I, R, and M* (e.g. machine tools, heavy machinery, fertilizer plants)

The demand for the products of each sector depends on the production of other sectors, but the connexions are different in nature. The demand for the products of sector C depends on the absolute size of the production of sectors I, R, and M, as well as that of sector C itself. If c is the propensity to consume

$$(C+I+M)c = D,$$

where D = demand for consumer goods and the other letters refer to the values of the output of the corresponding sectors. We do not include R in the left-hand side to avoid double counting as its value is included in the values of C, I, and M.

In the absence of international trade, we must have for stability $C = D$, i.e.

$$C(1-c) = (I+M)c. \tag{1}$$

If the value of the propensity to consume (c) cannot be influenced by policy, then, of course, the share of sector C in total output will be beyond our control. However, the size of c can normally be influenced by measures such as taxation and rationing.

The demand for I goods depends on the *rate of growth* of sector C output, since the relationship is one of stock and flow:

$$\frac{\delta C}{\delta t} \cdot i = I, \tag{2}$$

where i = capital-stock-output-flow ratio for sector C. The demand for R goods will depend on the absolute size of the production of all the sectors. Assuming the same material content (r) per unit of output of each sector,[1] we have

$$(C+I+R+M)r = R,$$

i.e.

$$R(1-r) = (C+I+M)r. \tag{3}$$

Finally, the demand for M goods will depend on the *rates of growth* of

[1] This, of course, is not true in reality. It may be noted, incidentally, that the intermediate-goods coefficient (r) of sector R itself covers *all* the intermediate stages of production prior to the production of the final consumer and investment goods. From this, it does not, of course, follow that the coefficient for sector R will be necessarily higher than for other sectors, for it is the *ratio* of the value of intermediate goods used to the value of *total* output that is relevant in each case. All we can say is that the value of r is not likely to be the same for all the sectors; but there is no ground on which we can postulate that it will be necessarily higher in any one of these sectors.

sectors I, R, and M itself.[1] Assuming, again for simplicity, the same capital-stock-output-flow ratio (m) for the three sectors, we get

$$\left(\frac{\delta I}{\delta t}+\frac{\delta R}{\delta t}+\frac{\delta M}{\delta t}\right)m = M. \tag{4}$$

If we wish to put these relationships in terms of two matrices, one giving the current-input flow and the other the capital-stock, they will look like this:

Current-input flow

	C	I	R	M
C	c	c	0	c
I	0	0	0	0
R	r	r	r	r
M	0	0	0	0

Capital-stock matrix

	$\delta C/\delta t$	$\delta I/\delta t$	$\delta R/\delta t$	$\delta M/\delta t$
C	0	0	0	0
I	i	0	0	0
R	0	0	0	0
M	0	m	m	m

This picture excludes working capital requirements. If we wish to include them, the first and the third rows (of C and R) will not consist of only zeros in the capital-stock matrix. We can easily include the corresponding coefficients and complete the picture. We are, however, not doing it in this note in order to keep the model as simple as possible.[2]

[1] We have assumed here that the equipments for the I sector and those for the R sector are somewhat similar in nature, so that the M sector produces both, along with machines for itself. Alternatively we could have assumed that the M sector produces machines only for sector I (apart from machines for itself), and sector I produces machines both for sector C and sector R. When the R good concerned is, say, steel, perhaps the first assumption is more realistic, but when it is, say, fertilizers, the latter may present a closer approximation to truth. We should like to emphasize that the relations between the different sectors postulated here, while realistic for some problems, may not be so for others. We should also perhaps point out, in this context, that one of the chief products of sector M, viz. machine tools, is used in considerable quantity to make motor-cars, normally a consumer good. An alternative model that takes care of cases like this can be constructed by lumping together sectors I and M, and treating the division of investment between these two sectors as a problem of internal allocation. There are, however, sufficient number of investment goods that *cannot* be used directly for producing consumer goods and can be used for making only other producer goods. Our division of investment goods into sectors I and M brings out more clearly certain implications of this kind of relationship.

[2] There are also some problems of installation of equipment and machines. This requires labour and, therefore, consumer goods. We are assuming, however, that the machines are complete only when they are installed so that the cost of labour is included in the value of the machines I or M. Similarly, each of these products contains elements of construction and conceptually we must assume that parts of the machines I or M consist of buildings. This introduces some complications about the definition of industries and sectors, which we are not introducing in this note.

III

From our equations it will appear that there is only one relevant proportional rate of growth, g, such that it can be maintained constant, and this g is the same for all the sectors:

$$g = \frac{\delta C}{\delta t} \cdot \frac{1}{C} = \frac{\delta R}{\delta t} \cdot \frac{1}{R} = \frac{\delta I}{\delta t} \cdot \frac{1}{I} = \frac{\delta M}{\delta t} \cdot \frac{1}{M}$$

$$= \frac{(1-c)(1-r)}{c(1-r)(i-m)+m}.$$

Given the necessity of steady growth, there is no freedom in the model.

We can, however, illustrate the difference between the expansion of the various sectors of the economy with somewhat altered assumptions. We assume, first, that consumption is controllable through public policy (e.g. taxation, rationing, &c.). The value of the required c will depend upon our allocations of investment between the different sectors, and what is assumed here is that it can be realized in each case. This is not entirely realistic, but the assumption is made in order to focus attention on one particular aspect of the problem of investment allocation. We are not, of course, assuming that consumption is unimportant for our decision; the whole point of the exercise is to get alternative time-paths of consumption, out of which choice can be made according to preferences and circumstances. We also assume that, in the initial situation, sectors I and M have not yet come into existence. There is a certain stock of capital for sector C (and in sector R corresponding to it), which is maintained,[1] but there is no addition to its capacity. We also assume that by exporting a part of this output we earn F quantity of foreign exchange every year. There is no scope of further expansion of this export. We may discuss the implications of using F for four alternative purposes, namely, (a) entirely for importing C goods, (b) entirely for importing I goods and R goods for the C sector, (c) entirely for importing M goods for the sectors I and R, and (d) entirely for importing M goods for the M sector itself. These are rather extreme cases, but they may serve to bring out clearly the differences in the roles of these sectors.[2]

In the ensuing paragraphs, we shall use C and R to refer to the amounts of consumer and intermediate goods produced over and above the output produced with the initial capacity. The problem does not, however, arise in the case of I and M, because we have assumed that these sectors are initially absent.

[1] The problem of depreciation is ignored. It should not be thought, however, that this assumption is crucial for the results of the model (*loc. cit.*, Bhagwati). The essential elements in our conclusions will be valid as long as investment goods are sufficiently lasting to allow accumulation to take place over time.

[2] We assume the same production coefficients (r, m, i) for domestic and foreign inputs.

In case (*a*), there is no expansion at all of the production base. Consumer goods are imported every year to the extent of F. The rate of growth of consumption over time $\delta C/\delta t$ is zero.

In case (*b*), the sector C of the economy expands through the import of I goods and R goods. If intermediate products can be ignored, i.e. if $r = 0$, then $I = F$, so that it follows from equation (2)

$$\frac{\delta C}{\delta t} = \frac{F}{i}. \tag{5}$$

Consumption will thus grow at a constant absolute rate over time. When, however, R goods are introduced, the picture will be somewhat altered. With the growth of the *absolute* size of sector C, the requirement of R goods will rise even if the rate of growth of consumption remains constant. In fact, as a result of this, the absolute rate of growth of consumption over time will fall and tend ultimately to zero, when the whole of F will be spent in importing R goods to utilize the available capacity of the production of consumption goods:

$$I+R = F,$$

i.e.
$$\frac{\delta C}{\delta t}.i+C.r = F,$$

i.e.
$$\frac{\delta C}{\delta t} = \frac{F-C.r}{i}. \tag{6}$$

In the limiting case $C.r = F$, and $\delta C/\delta t = 0$.

In case (*c*), the production of I goods and R goods in the economy will be initiated and their respective capacities will grow over time. We have the following relations:

$$I = \frac{\delta C}{\delta t}.i,$$

$$R = (C+I+R)r, \quad \text{i.e. } R = \frac{(C+I)r}{1-r},$$

and
$$F = \left(\frac{\delta I}{\delta t}+\frac{\delta R}{\delta t}\right)m.$$

From these, we get:

$$\frac{\delta^2 C}{\delta t^2} = \frac{F(1-r)-(\delta C/\delta t)r.m}{i.m}.$$

The absolute rate of growth of consumption ($\delta C/\delta t$) will thus itself rise over time but at a falling rate. The rate of growth of the rate of growth will tend ultimately to zero, when the whole of the *net* available foreign exchange will be spent to import M goods to produce additional R goods for the additional consumer goods production each year. $(\delta C/\delta t).r$ is the rate

of growth of R goods necessary for the growing consumer-goods sector, and $(\delta C/\delta t).r.m$ is the value of M goods to be imported to meet this. F is the value of M goods that can be imported in any year and $(F.r/m)$ is the additional R-goods requirement resulting from the operation of these machines. $(F.r)$ is, therefore, the quantity of machine that has to be imported to meet the additional R-goods requirement of importing F quantity of machine. The *net* available foreign exchange, over and above that used up to meet the R-goods requirement for their own operation, is $F(1-r)$. In the limiting case

$$F(1-r) = \frac{\delta C}{\delta t}.r.m, \quad \text{so that } \frac{\delta^2 C}{\delta t^2} = 0.$$

In case (d) the whole of F will be spent only to import M goods to produce more M goods. Thus we have the following relations:

$$I = \frac{\delta C}{\delta t}.i,$$

$$R = (C+I+R+M)r, \quad \text{i.e.} \quad R = \frac{(C+I+M)r}{1-r},$$

$$M = \left(\frac{\delta R}{\delta t}+\frac{\delta I}{\delta t}\right).m,$$

and

$$F = \frac{\delta M}{\delta t}.m.$$

From this we have

$$\frac{\delta^3 C}{\delta t^3} = \frac{F(1-r)-(\delta^2 C/\delta t^2).r.m}{i.m^2}.$$

The absolute rate of growth of the absolute rate of growth of consumption, $\delta^2 C/\delta t^2$, will thus itself grow over time but at a falling rate and will ultimately tend to be constant, i.e. $\delta^3 C/\delta t^3 = 0$, when the whole of the net available foreign exchange will be spent in importing M goods to have a larger flow each year of those M goods that will produce R goods necessary for the C sector whose rate of growth is itself getting faster.

It should be mentioned, in this context, that in the first year a part of F must be spent to build up some capacity which need not be expanded over time. For example, the M sector, which will grow at a constant absolute rate, will need more R goods each year. But this growth in the demand for R goods being constant over time, a once-for-all import of an appropriate M machine will be able to produce enough additional M machines to produce R goods each year. Since $\delta^2 M/\delta t^2 = 0$, there will be no further need to import any other M machine for this purpose. Thus the growth, though slower at the stage of initiation than our equations suggest, will be as fast subsequently.

IV

From the above discussion some differences between using our foreign exchange earnings to expand different sectors of the economy might have become clear. In case (*a*), $\delta C/\delta t = 0$. In case (*b*), $\delta C/\delta t$ is positive to begin with and then becomes zero at a higher level of C. In case (*c*), $\delta C/\delta t$ is positive and is rising over time, though at a falling rate, and ultimately $\delta C/\delta t$ will tend to be constant with $\delta^2 C/\delta t^2 = 0$. In case (*d*), $\delta C/\delta t$ is rising at a growing rate, but $\delta^3 C/\delta t^3$ falls over time and ultimately tends to be zero, so that $\delta^2 C/\delta t^2$ becomes constant. So the choice, in this system, should not be put so much as one between a faster and a slower growth rate, but as a choice between constant consumption, or its constant rate of growth, or its constant rate of growth of rate of growth, and so on. It should be noted that from the long-run point of view, each case is better than the earlier one, though the position is the reverse in the short period.

Which type of policy we choose will depend very much on the time necessary for the long-run effects to compensate the short-run results. This will depend on a host of factors, including the gestation lags of various types of investments, which we have so far ignored totally. The introduction of time-lags does not, however, alter the nature of the choice but only changes the dimensions of time relevant to the choice which, in practice, would of course be of supreme importance. Long periods of gestation pose, in particular, the problem of meeting the consumption requirements of the newly employed labour in the intervening period. As indicated earlier, we have made throughout the assumption that the available supply of consumption goods is so redistributed through taxation, rationing, &c., as to secure the appropriate value of c in each case irrespective of the level of employment. The political limits of this type of policy will, needless to say, restrict the degree of freedom in choosing between alternative time-paths open in any given situation.

One unique feature of our case (*d*) is that only in this case are all stages of production being performed in the economy and there is no *necessity* for imports to expand the output of any sector, though of course availability of imported goods may make things faster. This result is due to our assumption that M goods can make other M goods. This is an assumption that is not entirely unrealistic. As we move backwards in stages of production, a point comes where machines can reproduce themselves. Machine tools are good examples of this. There is, therefore, an escape from infinite regression and once some M industries are set up in the economy all forms of production become possible.[1]

[1] This conclusion rests, no doubt, on the assumption that specific natural resource endowments are not required for the production of raw materials.

Finally, a feature of these models is the limiting effect that the requirement of R goods imposes on the process. In case (b), it soon made $\delta C/\delta t = 0$, in case (c) it made $\delta^2 C/\delta t^2 = 0$, and in case ($d$) it resulted in $\delta^3 C/\delta t^3 = 0$, in spite of each of these starting as positive magnitudes initially. The R goods impose on our model the same sort of limit which C goods impose in a usual model of growth with no intermediate products and a given (unchangeable) propensity to consume. Additional demand for R goods is created the moment the output of any sector of the economy is increased, just as consumption, given the propensity to consume, goes up as soon as any sector of the economy is expanded. The only difference is that while taxation, rationing, and other policies may make the propensity to consume controllable, the same is not true of the material content of output, which is on the whole a technically given ratio and cannot be controlled except within narrow limits.

The empirical counterpart of the R-goods limit can be seen in the heavy burden imposed by the so-called 'maintenance imports' (consisting largely of R goods) on the Third Five-Year Plan in India.[1] If these raw materials and intermediate products are to be entirely imported, even the absolute rate of growth may be difficult to maintain, as in our case (b), unless exports can be expanded sufficiently. It is in this context that Professor Mahalanobis's argument for setting up iron and steel plants during the Second Plan comes into its own, in transferring us from case (b) to case (c).[2]

It appears to the writers that the fourfold classification outlined brings out a number of issues, connected with investment allocation, which may not otherwise be readily apparent.

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[1] The expected exports during the five years of the *Third Five Year Plan* are Rs. 3,450 crores, and that of the 'maintenance imports' alone is Rs. 3,570 crores (*Third Five Year Plan: A Draught Outline*, Government of India, June 1960, p. 53).

[2] Professor Mahalanobis's own case for iron and steel was based on his treatment of these as investment goods, a practice which we criticized earlier in this paper.

PRELUDE TO A CRITIQUE OF ECONOMIC THEORY

By JOAN ROBINSON

It is no wonder that this book[1] took a long time to write. It will not be read quickly. Addicts of pure economic logic who find their craving ill satisfied by the wishy-washy products peddled in contemporary journals have here a double-distilled elixir that they can enjoy, drop by drop, for many a day.

For some, indeed, the logic may be too pure. We plunge immediately into the argument without any preliminary discussion of assumptions and delimitation of topics. Evidently we are in a capitalist economy, but to avoid the ambiguities which have clustered around the word, capital is never mentioned. There is profit, but no enterprises; wages, but no pay-packets; prices, but no markets. Nothing is mentioned but the equations of production and the necessary conditions of exchange.

There is a great deal to be said for this method of exposition (over and above its lapidary style), for every attempt by an author to explain himself in terms of the preconceptions of one reader confuses another. Best leave each to work it out for himself.

To find a clue, let us go back a stage and pick up the argument from Sraffa's Preface to Ricardo's *Principles*. Postulate that corn is the only commodity consumed by workers and that the corn-wage rate is fixed. Corn is required also as seed, and there is no other commodity or equipment necessary for the production of corn. Then a stock of corn in existence at the beginning of a year has reproduced itself with a surplus at the end of the year. The ratio of the surplus to the stock is the rate of profit. The workers are, so to speak, intermediate goods, like machines, necessary for the process by which corn produces corn.

The corn-profit may be used to employ more workers to produce luxuries, or to carry out investment; or it may rot in the barns. The way it is used cannot affect the rate of profit, which is fixed by technical conditions, and the equilibrium prices of all other products are determined in terms of corn (and so in terms of each other) by their costs of production, including profit at the corn-rate upon the capital (valued in corn) required to produce them.

Can the propositions derived from this model survive the removal of the postulate that only corn is required to produce corn?

[1] *Production of Commodities by Means of Commodities. Prelude to a Critique of Economic Theory*, by Piero Sraffa (Cambridge University Press).

The first step—here the present argument begins—is to introduce a variety of wage goods. Let there be a number of distinct commodities each of which is required, in a particular quantity, to be consumed by a worker, just as particular quantities of oil and fuel are required to operate a machine. The commodities are also required to produce each other and themselves. (To set us off on the right tack, wheat, iron, and pigs are mentioned. But they soon become commodities $a, b, \ldots, k$.) The same argument applies as before. The commodities reproduce themselves with a physical surplus. The condition that the rate of profit is uniform throughout the economy settles their relative prices. The value of the stock of commodities at the beginning of the year and of the surplus after they have been replaced can be expressed in terms of any one of the commodities. The value of the real wage (which is fixed in physical composition by technical necessity) is also determined, and the cost of production of any commodities that do not enter into the real wage (subject to the condition that they yield the ruling rate of profit) settles their prices. This merely elaborates the corn-wage model without altering its essence.

The next step takes us much further. Instead of the real wage being fixed by physical necessity, the workers receive a share of the surplus. The author toys with the idea of separating the wage into a part which is necessary and the rest; he rejects it in deference to ordinary usage. He makes this concession with evident reluctance, but readers may welcome it, not only to avoid verbal clumsiness but also because we could hardly imagine that, when the workers had a surplus to spend on beef, their physical need for wheat was unchanged. Wage goods thus cease to be necessary for production in technically fixed proportions. There remain, however, commodities which are necessary as means of production for themselves and each other. (The pigs and wheat presumably drop out, but the iron remains.) They reproduce themselves with the aid of labour and yield a surplus out of which the labour is paid.

We are now launched on the main problem—the effect upon prices of changes in the division of the surplus between wages and profits.

Nothing is said about what determines the division. We are to consider the consequences, not the causes, of changes in the real wage.

It is this, not the austere style, that makes the book difficult. We are concerned with equilibrium prices and a rate of profit uniform throughout the economy, but we are given only half of an equilibrium system to stand on. We need a fence to prevent us plunging off into the abyss. The author suggests as a helpful (but not necessary) provisional assumption that constant returns prevail. I, for one, found that this only made me all the more dizzy. It seems better to assume that changes in the share of wages do not affect the composition of output.

There is a further difficulty. The wage 'changes' only in the sense that the value of x changes as we run our eye up and down a curve. In the year that we are examining, each change has already happened. So long as all commodities reproduce themselves within a year, this is easy to accept; but when long-lived machines come into the picture (in a later chapter) it causes discomfort. Can the equalization of the rate of profit throughout the economy come about except through the equalization of expected profits on new investment in various lines? If the rate of profit has changed during the life-time of machines in existence this year, there is no equality between expected and realized profits in any one line—why should there be equality between realized profits in different lines? Let us add to the protective fence of provisional assumptions that we need not take the word 'change' literally. We are only to compare the effects of having differing rates of profit, with the same technical conditions and the same composition of output. Thus reassured, we can remain on the narrow ledge without vertigo.

When the wage is not given by technical conditions, what do prices mean? A change in the division of the surplus between wages and profits alters relative prices. But we need to know the prices to value the surplus that is to be divided. This was the problem that flummoxed Ricardo.

Sraffa's solution is ingenious and satisfying. He isolates those *basic* commodities which enter directly or indirectly into the production of all commodities and, from the technical equations which show how each enters into the production of the others, he constructs a standard of value in the form of a composite commodity into which each particular item enters, as means of production, in the same proportion as it appears as output.

The beauty of this is that, as the wage reckoned in terms of this standard rises, the prices of some of the commodities composing it (in which wages are a high proportion of cost) rise, and others (in which profits are a high proportion of cost) fall, to just such an extent as to balance each other, and leave the ratio of the value of the surplus to the value of the means of production unchanged. This provides a technically determined ratio of surplus to means of production which is independent of the division of the surplus between wages and profits.

Now, given the n technical equations for n commodities, and the wage rate in terms of the standard, the $n-1$ prices and the rate of profit are determined. Or, given the n equations and the rate of profit, the wage is determined.

Assuming that wages are paid at the end of the year (no capital is required to finance a wage fund) there is a linear relationship between the share of wages in the surplus and the rate of profit.

This having been established, the standard commodity can be left to

look after itself and the argument is conducted in terms of the rate of profit corresponding to zero wages (that is, the ratio of surplus to means of production), and the actual rate of profit, with the wage rate that it entails.

In order to construct the standard commodity it must be possible to find a quorum of basics—commodities that enter directly or indirectly into the production of all commodities. So long as there are necessary wage goods there are bound to be basics, for, via labour, the wage goods enter into all production. But when wages are part of the surplus we have to fall back on an assumption that there is at least one basic commodity. Certainly that is plausible enough, but it is natural to ask what would happen if there were none. Does the whole method stand or fall on this assumption? I think not.

Suppose that technical equations could be divided into two systems without any overlap, in one of which iron enters directly or indirectly into the production of all commodities, and in the other, wood. The two systems of equations belong to the same economy in the sense that the rate of profit and the wage rate are the same in both. Now, when the rate of profit is given, the wage rate in terms of the iron-standard is determined for the iron system and the wage rate in terms of the wood-standard is determined for the wood system. The fact that the wage is uniform determines the price of iron in the wood-standard. The assumption of at least one basic commodity thus appears to be a mere simplification, not a crucial step in the argument.

After exploring the properties of a system in which each productive process takes one year and produces one commodity, we are shown the application of the method to joint products, fixed capital and land, and to the choice of technique when alternative methods are available for producing a single commodity. The argument then ceases as suddenly as it began.

In elaborating the method to deal with complexities such as long-lived machines, many points of great interest are turned up (including a version of the formula for the relation of the value of a machine to its cost which was worked out, presumably, much later, though published earlier, by Kahn and Champernowne), but the main point of dealing with these problems is just to show that it can be done. The essence of the argument remains that which is exhibited with circulating capital only.

The sub-title gives a hint of the purpose for which it has been established —*Prelude to a Critique of Economic Theory*. In the preface, after referring to a draft of the book which he discussed with Keynes in 1928, Sraffa writes:

> As was only natural during such a long period, others have from time to time independently taken up points of view which are similar to one or other of those adopted in this paper and have developed them further or in different directions from those pursued here. It is, however, a peculiar feature of the set of propositions now published that, although they do not enter into any discussion of the marginal theory

of value and distribution, they have nevertheless been designed to serve as the basis for a critique of that theory.

The significant word is 'however'. Others have developed input-output systems and process analysis to higher degrees of elaboration than are shown here, but they have not brought them to bear on the foundations of orthodox doctrine.

Can we divine what the critique will be? There are three main propositions which can be derived from the corn-wage model and which have been shown to survive all the necessary modifications that follow from elaborating its assumptions.

The first is that, when we are provided with a set of technical equations for production and a real wage rate which is uniform throughout the economy, there is no room for demand equations in the determination of equilibrium prices. (When we take down our protective fence, and allow that changes in distribution affect the composition of output, we shall need a fresh set of equations relating them, but that is quite another matter.)

Some might complain that this is only flogging a dead Marshallian horse (which Sraffa himself helped to kill, even before 1928). But to my mind it emphasizes a point which, both in its scholastic and in its political aspect, is of great importance; in a market economy, either there may be a tendency towards uniformity of wages and the rate of profit in different lines of production, or prices may be governed by supply and demand, but not both. Where supply and demand rule, there is no room for uniform levels of wages and the rate of profit. The Walrasian system makes sense if we interpret it in terms of an artisan economy, where each producer is committed to a particular product, so that his income depends on his output and its price. Each can have a prospective rate of return on investment in his own line, but there is no mechanism to equalize profits between one line and another. In real life, no one expects to see an equalization of the rates of profit obtainable from sugar in Cuba and cocoa in Ghana or can even say what an equal rate of profit would mean.

The intrusion of demand equations into the theory of the wage economy, and the attempt to foist a rate of profit onto the exchange economy, have led to endless confusion; a critique to clear it up is long overdue.

The second proposition is mentioned by Sraffa in his *References to the Literature*. It is the rejection of the claim 'that the price of every commodity, either immediately or ultimately, resolves itself entirely (that is to say, without leaving any commodity residue) into wage, profit, and rent.'

In the corn-wage economy, the production of corn this year requires that there should be a stock of corn already in existence, to provide seed and the subsistence of the workers until the next harvest. Sraffa has removed the assumption of a technically determined physical real wage. This

throws great weight upon commodities regarded as means of production, a weight made all the greater by the assumption that capital is not required for a wage fund. *Production of Commodities by means of Commodities* is his central theme.

It leads to the very striking proposition that there is a technically determined maximum notionally possible rate of profit, which would obtain at zero wages. (It is only notionally possible, for even when the postulate of a precise physically necessary wage has been abandoned, there is still a vague but tough lower limit to possible real wages and so an upper limit to the possible rate of profit.)

The third proposition, if we may indulge in a loose mode of expression that the author carefully avoids, is that the marginal productivity theory of distribution is all bosh.

Sraffa does not deny any sensible arguments that can be expressed in marginal terms. His treatment of diminishing returns from land and of the choice of technique makes room for legitimate uses of the concept of a productive function. What he demonstrates decisively (though doubtless the deaf adders will take no notice) is that there is no such thing as a 'quantity of capital' which exists independently of the rate of profit.

It is important to realize that the third proposition does not depend upon the second.

Certainly the proposition that no production, by the methods known today, could take place without some pre-existing commodities, is highly plausible, but it is a matter of fact, not of logic. It does not mean that if prices could be reduced, without residue, to wage, profit and rent, then the marginal productivity theory of distribution would be cogent.

Flint mines were dug with antlers picked up in the forest. If this economy was run on capitalist lines, it must have been necessary to advance wages to the men collecting antlers (otherwise they would be self-employed traders). Men dug the pits and shaped the flints. All processes could be reduced to terms of dated inputs of labour. To find the capital required for production (in the sense in which capital is the principal on which profit is the interest) we must know either the wage in terms of axes or the rate of profit.

Certainly, Sraffa is right that in Ricardo's time, or our own, commodities are necessary to produce commodities. But even the neolithic rate of profit was not determined by the 'marginal product of capital'.

Presumably, it will be a little time before the critique to which this is the prelude will be published. We might have some self-criticism meanwhile.

Cambridge

THE INFLATIONARY EFFECTS OF EXCESS DEMAND FOR GOODS AND EXCESSIVE REAL INCOME CLAIMS[1]

By J. D. PITCHFORD

In the first section of this article it is postulated that cost inflation arises from 'excessive income claims' and demand inflation from 'excess demand for goods'. As it is clear that excess demand for commodities and excess income claims may often be present together, a situation which we shall call mixed cost/demand inflation will not be unusual. This article is concerned with an investigation of the nature of mixed inflation.

Two models of mixed inflation are discussed in the second and third sections. The first model is essentially similar to models of inflation which I have treated elsewhere.[2] That is, excessive claims are taken to be autonomous, arising as it were from causes outside the economic system. The presumption is that methods of income determination are responsive to social rather than economic forces; that pressures for greater income equality produce excessive claims. However, excessive claims may also be generated by economic forces as is shown in the second model discussed. In particular if claims are responsive to excess demand for and supply of factors of production (i.e. if income claims are flexible) a situation of mixed cost/demand inflation can be generated by excess demand for commodities even though claims are not excessive initially. Mixed inflation is likely to be common, therefore, not only because of the social pressure for greater income equality, but also because demand inflation may at times degenerate into mixed inflation.

Unlike demand inflation, mixed inflation is shown to be such that conventional policies can only achieve price and wage stability at less than full employment. The policy problems that this produces are touched on in the last section. Throughout the article the analysis is confined to a closed economy.

I

The intuitive content of the distinction between demand inflation and cost inflation is disclosed by the use which has been widely made of it over the past few years. In general, those arguing that we have been witnessing a cost inflation have placed the emphasis on the hypothesis that a reduction of aggregate demand would reduce (or has

[1] The author is indebted to Sir Roy Harrod, Sir Donald MacDougal, Mr. C. S. Soper, Mr. A. MacBean, and Mr. B. Thalberg who read earlier drafts of this paper. Of course they bear no responsibility for the view expressed.

[2] 'Cost and Demand Elements in the Inflationary Process', *Review of Economic Studies*, 1957.

reduced) the degree of resource utilization, and that this consequence would show *not only* temporarily, during a period of adjustment.[1]

The quotation outlines the basis we shall use for distinguishing between various types of inflation. If, in order to restore full employment and stable prices and wages (abstracting from productivity growth) some types of inflation require one set of policies whilst other types require an essentially different set useful distinctions can be made between those inflationary processes. Conventional anti-inflation policy aimed at reducing the level of aggregate demand for commodities in order to keep the price level stable may in some cases cause a rise in unemployment. Clearly those cases in which such a policy causes excess supply of productive factors must be separated out from those in which it would not.

It is fundamental to this article that in most cases the reason why full employment of productive factors may sometimes be incompatible with a stable price level is that the factors concerned are making 'excessive income claims'.[2] How this happens will be apparent from the body of the paper, for the moment we shall concentrate on the meaning of the concepts.

The income claim of a factor is its supply price. Take labour, for example. If there are trade unions in existence these bodies may formulate labour's real income claim, but if there are no trade unions it is the marginal disutility of work which determines labour's supply price. A real income claim is taken to be excessive when it is greater than that real income which will equate the demand for and supply of the factor in static conditions.[3]

Whether or not there is excess demand for commodities will also be relevant for the purposes of anti-inflation policy, and this concept, together with the notion of excessive income claims, form the ingredients of the following definitions. Briefly, cost inflation is defined as the process of price and wage rises resulting from a situation in which real income claims are excessive, but there is no excess demand for or supply of commodities. Demand inflation is taken to be the process of price and wage rises produced by excess demand for commodities when income claims are not excessive. Clearly mixed cost/demand inflation is also possible. It takes place when there is a combination of excess demand for commodities and excessive real income claims.

[1] W. J. Fellner, 'Demand Inflation, Cost Inflation, and Collective Bargaining' in (ed. P. D. Bradley), *The Public Stake in Union Power*, Charlottesville, University of Virginia Press, 1959.

[2] This does not imply anything about how the 'excessive claims' are caused. For instance, resistance to a reduction in money wages when prices are falling, and trade union pressure for higher real wages may both produce 'excessive income claims'. Nor is there any implication about the justice of such claims.

[3] The relevance of the last phrase will become clear later. See pp. 65 and 66. For a precise definition of an excessive real wage claim see the Appendix, p. 70, footnote.

There are other ways of defining these terms using the excessive claim concept, and I would have no quarrel with some such alternative. However, a set of definitions which is not based upon the idea of excessive real income claims is liable to be misleading, and to confuse more often than clarify.

For example, one such definition has it that cost inflation occurs when money wages rise faster than the (marginal physical) productivity of labour. If this is so the only way to stop a cost-push from labour when, due to excess demand for goods, prices are increasing rapidly is to let the real wage continuously fall. We would then have 'pure demand-pull' inflation, though it would be difficult to establish whether this was any better than the previous situation. Again if we know that money wages are rising faster than productivity and prices are also rising we do not have enough information to be able to tell whether elimination of excess demand for goods would increase unemployment or not. In short there is no useful policy implication of such a definition other than (i) it tells us whether or not some sort of inflation is occurring, (ii) if prices are constant it tells us whether or not real income claims are excessive and so corresponds with the sort of definition which I have given.[1]

Before we examine mixed inflation it is necessary to say something about the workings of cost inflation and demand inflation. Provided that there is no excess supply in any market cost inflation will continue indefinitely with prices and wages rising at a speed depending partly on the level of claims and partly on the speed of adjustment of money income to price changes. Cost inflation will not produce excess supply in any market if (i) the level of real demand for commodities does not fall when the price level rises,[2] and (ii) no productive factor actually makes a gain in real income at the expense of other factors, other things being equal, or of profits.

If the level of real demand for commodities is not reduced by rising price levels prices can, of course, go on rising indefinitely without causing excess

[1] Another basis for distinguishing inflation types is the method of price and wage determination—cost determined (administered) or demand determined (flexible)—in operation during the process. By implication the reasons for preferring the definitions which I here accept are covered in the *Review of Economic Studies* article, op. cit. In brief, apart from the case of purely cost determined prices and wages, all the models I have investigated in which cost and demand methods of pricing are combined in various ways can exhibit cost inflation, mixed inflation, or demand inflation in my sense. In fact the important ways in which one model may differ from another in the type of inflation produced, depend not so much on the methods of price and wage fixation as on the amounts of excess demand for commodities and the level of income claims (and the speeds of response of prices and wages, but this factor is largely neglected here for more precise analysis is needed to handle it). The pure cost model (prices and wages based on variable production costs, and the cost of living, respectively) produces only cost inflation.

[2] In Lange's terms this requires the monetary effect to be absent or negative, see O. Lange, *Price Flexibility and Full Employment*, Bloomington Ind., Principia Press Inc., 1944.

supply of goods. In order that the price level shall have no effect on the real demand for goods it is necessary that:

(*a*) the money supply is perfectly elastic so that the real money supply is constant; or

(*b*) the velocity of circulation of money is capable of indefinite increase at the ruling rate of interest; or

(*c*) interest rates have no effect on investors' and consumers' decisions to spend; and

(*d*) there is no money illusion involved in investors' and consumers' decisions to spend; and

(*e*) that price changes produce no changes in the distribution of real income, for this may well affect the level of real demand.

Excess supply will develop in some factor markets if the factors concerned are successful in raising their prices relative to prices of other factors, other things being equal, for it will pay entrepreneurs to substitute less expensive factors for the more expensive.

If the excessive claims generating a cost inflation are such that some factors gain at the expense of real profits these factors will find themselves in excess supply. The reduction in real profits causes producers to abandon marginal outputs upon which profits will be negative. The unemployed factors may choose either to remain unemployed or to reduce claims to levels consistent with real profit being sufficient to maintain full employment.

Demand inflation will continue indefinitely, other things being equal, if the level of real demand is unrelated to the price level. For if this is so price rises do not reduce the inflationary gap and the process continues unabated. When price rises do reduce real demand there will be a narrowing of the gap between real demand and supply as inflation proceeds so that eventually a price (and wage) level is reached at which the two are balanced. The cause of price (and wage) rises now having been removed, there being no excessive income claims which could force prices (and wages) still higher, inflation will come to a stop with output at the full employment level. At this point all factors of production will be just fully employed (neither in excess demand or supply) as none of their income claims is excessive.

We now turn to a discussion of two types of mixed cost/demand inflation, one involving rigid and the other flexible income claims. We shall concentrate on the problems produced by excessive real wage claims, although mixed inflation could also involve excessive real profit claims. The chief reason for doing this is to simplify the analysis.

II

The processes in this and the next section are based on the following assumptions:

1. The economy is closed.
2. Labour is the only variable factor of production in the short run.
3. Wage and profit earners are the only income receivers in the system.
4. In the short run the labour force offering for employment and thus full employment output are constant.
5. Problems of aggregation are ignored.
6. The systems analysed are stable so that the static values are approached after a disturbance occurs. In other words price rises will eventually reduce excess demand to zero (or below). This may be interpreted in several ways. Some systems are naturally stable, especially if the conditions (*a*) to (*e*) on p. 62 are absent. Other systems are unstable, the process being capable of continuing indefinitely. In this case it requires government action to check demand in order to bring inflation to a halt. In studying stable systems we are, therefore, looking at either naturally stable situations or at the effect of restricting demand in naturally unstable situations.

We now proceed to an examination of mixed inflation with rigid real wage claims. Fig. 1 describes the static determination of the real wage rate. N_1 is the demand curve for labour based on the diminishing marginal physical product of labour as more labour is employed. $\overline{N}$ is the (assumed constant) supply of labour. The real wage at full employment $(W/P, 1)$ is given by the intersection of N_1 and $\overline{N}$.

The system is taken to be in equilibrium at full employment before the inflationary shock.[1] If we are to have mixed inflation the shock which starts the system going must consist not only of an increase in the demand for commodities, but also of a rise in real wage claims.[2] The two disturbances may be regarded as being either independent or interrelated. A successful rise in real wage claims will be accompanied by a rise in the demand for goods if the controlling authorities react to the excess supply of labour, produced by the excessive real wage, by increasing demand in the commodity market.[3]

Let us suppose the unions decide they want a higher real wage. This wage claim (say $W/P, 2$ in Fig. 1) thus becomes the labour supply curve.

[1] The complete systems with which we work are set out in the Appendix.

[2] Alternatively the shock could be an increase in real profit claims.

[3] The case of a rise in the demand for goods inducing a higher real wage claim involves flexible wage claims and is discussed in the next section.

Strictly, until this claim is realized employment should fall to zero, but this does not seem to be the way things happen. We shall take it that as long as $W/P, 2$ is a feasible target which is being approached labour offering for employment does not fall below $\bar{N}$.

Prices rise in response to the excess demand for goods, and money wages rise so as to establish the new real wage. In the commodity market the multiplier works continually to raise demand, but excess demand is continually reduced by price rises (the system being stable).

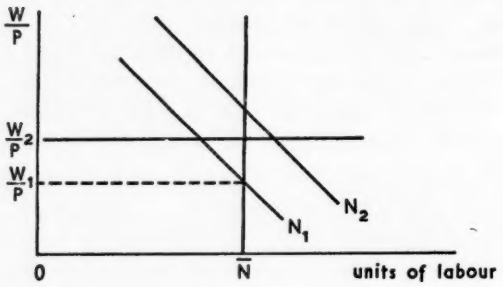

FIG. 1

What happens in the labour market depends upon the rate at which the real wage changes and the direction in which it moves, that is, on the rate of money wage rise compared with the rate of price rise. If wages rise more slowly (quickly) than prices at the outset of the process the real wage will fall (rise) so that the early stages of the mixed inflation will be characterized by excess demand for (supply of) labour as well as excess demand for commodities. The speed of price rise depends upon the amount of excess demand in the commodity market and the speed of response to that excess demand. The speed of money wage rise depends upon the gap between the actual and the claimed real wage, and on the length of time it takes to make a wage settlement.

Therefore, there will be excess demand for labour in the early stages if the amount of excess demand for goods is in some sense large compared with the gap between the desired and the actual real wage.

Early excess supply of labour could, if nothing is done to remedy it, lead to an ending of inflation before it really gets under way. The fall in employment and thus in real output and real income will lead to a reduction in excess demand for goods, and eventually a cessation of price rises.

There is, however, another possibility. It seems a strange system that exhibits unemployment at a time when there is excess demand for commodities. The explanation is, of course, that the existing level of real wages

does not leave a high enough level of real profits for entrepreneurs to find it worth while to keep producing and selling their existing output at the existing price level. This is quite reasonable in a static system, but in our dynamic model excess demand for goods implies that prices will be higher and, other things being equal, the real wage lower in the future. It may then seem worth while to retain the present level of output and employment, because of the possible future improvement in real profits. In terms of Fig. 1 excess demand for goods may cause the labour demand curve to shift to the right from N_1 to, say, N_2.

There is another way of looking at this proposition. The relationship between the commodity market and the labour market is *via* the real wage. Price changes produce real wage changes which bring the state of the labour market into line with the state of the commodity market. May not there be a more direct connexion? Consider the case of excess *supply* of commodities. Will entrepreneurs hesitate to cut back output and employment until the real wage has been forced up by falling prices? Some of them will anticipate the rise in the real wage and act accordingly. The proposition may not be so strong when applied to the case of excess demand for goods (possible bankruptcy may be a greater stimulus to action than the possibility of larger profits) but it does not entirely lose its force in this case.

If the excess demand for goods which is part of the initial shock arises from or induces an attempt to increase investment entrepreneurs can look forward to a higher labour productivity to the extent that they believe they can fulfil their expansion plans. No increase in productivity will, however, take place until the new equipment is produced, installed, and in use. Nevertheless the possibility of this greater productivity would act as a stimulus to entrepreneurs to offer workers a higher real wage than they are at present worth.

We may formalize these propositions in the following way. Take an arbitrary value for the number of employees of a single producer. The product of this labour will normally be sold only after an elapse of time.

Let

Θ be the average time between the input of a unit of labour and the sale of the resulting product,

$g+1$ be the time for which the producer expects to hold the money wage constant,

$m_t,\ldots, m_{t+g}$ be the expected marginal physical products of a unit of labour over the $g+1$ periods,

$P_{t+\Theta},\ldots, P_{t+g+\Theta}$ be the expected prices at which the product is sold each period,

W_t be the money wage which it will be profitable to pay at time t,

r be the interest rate.

Then

$$W_t = W_{t+1} = \ldots = W_{t+g}$$

$$= \frac{Z}{g+1} = \left(\frac{m_t P_{t+\Theta}}{(1+r)^{t+\Theta}} + \frac{m_{t+1} P_{t+1+\Theta}}{(1+r)^{t+1+\Theta}} + \ldots + \frac{m_{t+g} P_{t+g+\Theta}}{(1+r)^{t+g+\Theta}} \right) \frac{1}{g+1}$$

and

$$\frac{W_t}{P_t} = \frac{Z}{P_t(g+1)}.$$

Where Z is the sum of the discounted values of the marginal physical products of labour from time $t+\Theta$ to time $t+g+\Theta$.

If this experiment is repeated for all feasible numbers of employees of the firm a schedule of the present worth of the marginal physical productivity of labour will be found. There will be such a schedule for each producer, and it will be necessary to aggregate these schedules in some way in order to obtain a schedule for the whole economy. If prices and productivity are expected to rise this schedule will be above the schedule constructed on the basis that prices and productivity will be unchanged, and the gap between these two schedules will be larger;

(i) the less frequently firms wish to change their wages,
(ii) the longer the period of production,
(iii) the larger is excess demand for commodities, i.e. the faster are prices expected to rise,
(iv) the more firms expect to invest, i.e. the faster is productivity expected to rise.

The possibility of shifts in the labour demand function biases the outcome towards excess demand in the labour market in the beginning of a mixed inflation. It allows the real wage to rise above its static equilibrium level without excess supply of labour occurring. As excess demand for goods falls there are two possible outcomes. If the rightward shift in the labour demand curve was based upon an expected increase in labour productivity which, due to increased investment, in fact materialized it is possible that the real wage rate $W/P, 2$ may not be excessive. In this case prices and wages will come to rest at a position of full employment. However, if the rightward shift in the curve was based on the hope that the real wage would fall because wage earners would be unable to offset price rises by money wage rises, or if the shift was based on expected increases in labour productivity which did not occur, the labour demand curve will fall back towards its original position at N_1 as excess demand for goods falls. Eventually this must mean that a real wage claim such as $W/P, 2$ will produce excess supply of labour.

There is, then, no possibility of checking inflation without causing unemployment. Mixed inflation with rigid and excessive real wage claims can disguise this problem until an attempt is made to check it. If claims

were not excessive (demand inflation) the authorities may cause unemployment only if they mistakenly reduced demand by more than is required to close the inflationary gap. With rigid and excessive claims, however, excess supply is inevitable if demand is restrained.

III

We now suppose that real wage claims are flexible, being capable of variation with excess demand for and supply of labour. Unions, it is assumed, are powerful enough to raise real wage claims if there is excess demand for labour and are forced to lower them if there is excess supply.

We start again from full employment with no excess demand or supply in any market. The system will be in equilibrium in such a situation for if real wage claims and thus real wages vary every time there is excess demand or supply the only stable real and money wage levels are ones at which the real wage equates demand for and supply of labour.

Here we assume one shock only. Something happens to raise the demand for commodities and prices start rising in response to the excess demand. The immediate result is that real wages fall and there is excess demand for labour. Money wages then rise, first because, being cost determined (i.e. the real wage being the strategic variable in labour's employment offers), they will adjust to the price rise, and secondly because the excess demand for labour induces unions to raise their real wage claims.

Prices and wages increase, and eventually the actual real wage will be restored to the level $W/P, 1$ which equates demand for and supply of labour (see Fig. 1). The process will not stop here for at this stage the real wage *claim* is well above $W/P, 1$, having started rising from this level. Plans have been made for money wage increases based on a higher real wage than $W/P, 1$. They cannot be abandoned immediately. The real wage will rise above $W/P,1$ and unemployment will set in.

This assumes that the labour demand function has not shifted to the right because of excess demand for goods. If the curve has shifted unemployment will eventuate at a later stage when the rising real wage meets the falling labour demand curve.

The degree of flexibility of claims will have an important bearing on the type of inflation experienced. Let us examine two extreme cases. If real wage claims are fairly inflexible it will take a long period of inflation for them to build up to an appreciable level. During this build up the process will resemble demand inflation more than mixed inflation. However, once real wage claims are high the process is similar to mixed inflation with rigid claims. This is so particularly as these excessive claims will be difficult to reduce.

Very flexible real wage claims mean rapid wage adjustment with the possibility that excess supply of labour will emerge relatively early in the process. It is tempting to argue that a rapid convergence to equilibrium will then take place. The difficulty is, that with very sensitive systems discrepancies are often over-corrected and not just corrected quickly. If this is the case the process will take the form of short sharp movements in wages and employment.[1] Perhaps it is as well that modern methods of wage determination do not allow rapid changes in claims.

If the labour demand curve is subject to shifts it is possible for the real wage to exceed W/P, 1 even if unions are weak so that wages are effectively demand determined. But a leftward shift in the labour demand function in response to falling excess demand for goods may still cause unemployment. This is because money wages are frequently unable to fall below an agreed or legally fixed minimum, so that it may not be possible for the real wage to fall back to W/P, 1 in response to the shift in the demand curve. Thus even if unions are weak real wages may rise to excessive levels during an inflation and an attempt to combat inflation may cause excess supply of labour.

I shall not pursue the course of these processes past the point where excess supply sets in, for when this happens it is clear that some remedial action is necessary. Doubtless unless the system falls into one of the Keynesian traps a recovery will be generated, but how long that recovery will take, or how long, once recovered, the economy will stay recovered are questions which can only be answered (if at all) by more precise analysis.

It is interesting to return to the quotation from Professor Fellner with which we started section I. Reducing aggregate demand in order to eliminate an inflationary gap in the commodity market will cause permanent unemployment (in the sense that after a period of adjustment some unemployment will remain) rather than temporary unemployment if claims are excessive and rigid. If claims are flexible it is true that unemployment will be temporary, and hence a lesser problem, but the period of adjustment may be quite long or may involve quite large oscillations so that it is not possible to dismiss it entirely.

It is now appropriate to ask what should be done and at what stage.

IV

There are partial remedies for mixed inflation which deal with one or other of its causes. If demand is held at an appropriate level it is possible to overcome the inflationary gap and keep price and wage increases to a minimum. Such action will, if excessive wage claims are present, cause, at

[1] A similar system which I have examined did, in fact, produce high frequency oscillation when income claims were made very flexible. This system is contained in chapter v of my Ph.D. thesis, a copy of which is in the Australian National University Library, Canberra.

least temporary unemployment and a slackening of growth. If demand is induced or permitted to rise at an appropriate rate it is likely that unemployment can be avoided, but prices and wages will rise. There is, then, a choice in these partial remedies between stability and growth.

Clearly demand reducing policies and claim reducing policies must be combined if stable prices and full employment are to be achieved. From a practical point of view this involves the problems of detecting excessive income claims, and devising methods of reducing claims—both central difficulties, and beyond the scope of this paper. We shall be content to point out some rather obvious policy rules which could be applied to mixed inflation.

In the early stages of a mixed cost/demand inflation claims may not be greatly excessive so that demand reducing policies may be successful in restoring equilibrium. It follows that if demand is kept at a steady level consistent with maintaining, say, a desired rate of growth or level of unemployment, the likelihood of an induced rise in income claims is minimized.

Much the same argument applies to an investment boom. If it is likely to overtax resources it is better to moderate it at the outset. However, once it is on the way it is unwise to check it suddenly for this will leave many plans unfulfilled and received real incomes of factors may thus be excessive.

Finally it is *real* and not money income claims which must be compared with marginal physical productivity if we are to discover whether conventional anti-inflation weapons will work satisfactorily. Comparing money wage changes with physical productivity changes can tell us no more than that an inflation is taking place.

APPENDIX

Symbols

P the price level of commodities.
Y^d the aggregate real demand for commodities.
Y the aggregate real supply of commodities.
W the money wage rate.
N^d the demand for labour.
N the supply of labour.
J the real wage claim.
Z the sum of the discounted values of the marginal products of labour from time $t+\Theta$ to time $t+g+\Theta$.
$\bar{K}$ the constant supply of capital.

The system, before allowing for excessive real wage claims and the effect of changing valuations of the marginal physical product of labour, may be written:

$$\frac{dP}{dt} = f_1(Y^d - Y), \quad f_1(0) = 0, \quad f_1' > 0 \tag{1}$$

$$Y^d = f_2(P), \quad f < 0 \tag{2}$$

$$Y = f_3(\bar{K}, N), \quad f_3' > 0 \tag{3}$$

$$\frac{dW}{dt} = f_4(N^d - N), \quad f_4(0) = 0, \quad f_4' > 0 \tag{4}$$

$$N^d = f_5\left(\frac{W}{P}\right) \quad \text{where} \quad \frac{W}{P} = \frac{\partial Y}{\partial N}, \quad \frac{\partial (W/P)}{\partial N} < 0 \tag{5}$$

$$N = \bar{N}. \tag{6}$$

This system is essentially a condensed version of the Keynesian system [see, for instance, F. Modigliani: 'Liquidity Preference and the Theory of Interest and Money', *Readings in Monetary Theory* (American Economic Association)]. The money equations and the saving/investment equations are telescoped into (2), and the Keynesian assumption that the money wage is constant for downward movements in the demand for labour is omitted.

When we introduce exogenously determined excessive real wage claims the system could be described by equations (1), (2), (3), (5), (6) and

$$\frac{dW}{dt} = f_6\left(\bar{J} - \frac{W}{P}\right), \qquad f_6(0) = 0, \qquad f_6' > 0, \qquad \bar{J} > \frac{\partial Y}{\partial N}. \tag{7}$$

Alternatively we may use the system equations (1), (2), (3), (5), (6) and

$$\frac{dW}{dt} = f_7(N^d - N^*), \qquad f_7(0) = 0, \qquad f_7' > 0 \tag{8}$$

$$\bar{J} = f_8\left(\frac{\partial Y}{\partial N^*}\right), \qquad \bar{J} > \frac{\partial Y}{\partial N}. \tag{9}$$

The behaviour of these two systems is very similar, and for our purposes either could be used. In the second system money wages adjust to excess demand (or supply) in the labour market (8) as given by the difference between the demand for labour and the amount of labour which would be demanded if the real wage rate were $\bar{J}$ (9). In the first system the money wage adjusts in order to establish the real wage $\bar{J}$. Both systems have the same static values, for if $N^d = N^*$, from (9) and (5) $\bar{J} = W/P$.

If we take the demand for labour to be dependent on future as well as present values of the marginal physical product of labour we have

$$\frac{W_t}{P_t} = \frac{Z}{P_t(g+1)}, \tag{10}$$

$$Z = f_9\left(Y^d - Y, \frac{\partial Y}{\partial N}\right). \tag{11}$$

These functions are described in the text (pp. 65 and 66 and (10) and (11) can be substituted for (5) in any of the systems discussed.

In section III excessive real wage claims are induced by excess demand for labour. This system is given by (1), (2), (3), (10), (11), (6) and

$$\frac{dJ}{dt} = f_{10}(N^d - N), \qquad f_{10}(0) = 0, \qquad f_{10}' > 0 \tag{12}$$

[1] This condition, $\bar{J} > \partial Y/\partial \bar{N}$, is the definition of an excessive real wage claim. If the labour supply were taken to have some elasticity, varying, say, directly with the real wage so that

$$N = f_{11}\left(\frac{W}{P}\right), \qquad f_{11}' > 0,$$

we would define an excessive real wage claim as $\bar{J} > W/P^*$ where W/P^* is such that

$$f_5\left(\frac{\partial Y}{\partial N}\right) = f_{11}\left(\frac{W}{P^*}\right).$$

It can be seen that the stationary state of this system is equivalent to that of the first system described by (1), (2), (3), (4), (5), (6). Under static conditions (1) becomes

$$Y^d = Y \tag{13}$$

and (4) and (12) both reduce to $N^d = N$ (14)

whilst (10) and (11) reduce to (5), so that the two systems are both given by (2), (3), (5), (6), (13), (14).

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SAY'S LAW AND ANTI-SAY'S LAW: THE DANGER OF CLOSED CIRCUITS

By H. F. LYDALL

THE dragon of Say's Law was finally killed by Keynes; but in the course of the fight he raised a new bogy, which has bedevilled the discussion of monetary theory ever since. The fallacy of Say's Law is the belief that a closed economy is also a closed circuit, like this—

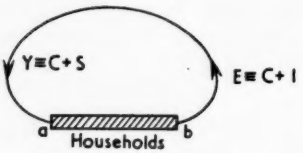

FIG. 1

Whatever is received as income (Y) must also become expenditure (E). Thus aggregate demand equals aggregate supply, and since consumption enters on both sides, saving (S) is equal to investment (I). Moreover, the essence of the proposition is that the causal relation runs from Y to E, not the other way about. Hence S is not merely *equal to* I, but S *generates* I.

Keynes turned this argument on its head when he said—in effect—'it is not the number of eggs that determines the number hens, but the number of hens that determines the number of eggs'. It is not income that generates expenditure, but expenditure that generates income. Thus E determines Y, and I determines S. This may be called 'anti-Say's Law'.

This new way of looking at things was very refreshing, not to say revolutionary, when applied to the problems of effective demand, employment, and income. But when it was introduced into monetary theory it became a considerable nuisance. For in his determination to establish the fact that S is governed by I, and not by the rate of interest or by thrift, Keynes was led into believing that the *flow of money* into households at point a is exactly determined by the outflow at point b; from which it necessarily followed that the supply of loanable funds cannot be directly influenced by thrift. The supply of loanable funds, on this way of looking at things, is simply the total stock of money in existence; so that the rate of interest is determined by the willingness to hold money, not by the willingness to save.

It seems probable that Keynes had in his mind's eye a picture of money flows somewhat like this—

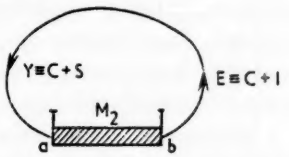

FIG. 2

The household 'box' has been converted into a 'tank'. The money in the tank is now labelled 'idle balances' (M_2), while the money in circulation round the system from b to a is called 'active balances' (M_1). Money entering the tank at a need not any longer pass automatically out at b, since 'the public' may decide to increase their hoards of M_2. But here we come to a paradox: for the decision to increase holdings of idle balances cannot, according to Keynes, result in any increase in M_2, since the quantity of M_2 is fixed by the total stock of money minus M_1. All that the decision to increase M_2 can produce is a reduction in the rate of outflow at b, which Keynes thought of primarily—if not solely—as a fall in I, resulting from a rise in the rate of interest (r). But, so long as the circuit from b to a is a closed circuit, any slackening in the rate of outflow at b automatically *and immediately* entails an equal reduction in the rate of inflow at a ($S \equiv I$), and so the quantity of M_2 remains unchanged.

While Keynes rejected violently and persistently any suggestion that an increased propensity to hoard could *directly* increase the stock of M_2, he admitted that it could do so *indirectly*, through a fall in M_1. For a decline in I would reduce E and Y (to a multiplied extent) and thus reduce the required stock of active balances (M_1). The release of part of these balances would therefore increase M_2, provided M was not cut back to the same extent.[1] One may well wonder why Keynes insisted so strongly on this point, since the division he made between the decision to increase M_2 and the ultimate increase in M_2 (as a result of a fall in Y and M_1) is very largely artificial. Surely, if consumers decide not to make so many new loans as previously, the outflow of money through b will slacken (consumption being unchanged), while the inflow of money at a will not fall *immediately* to the same extent? The passage of money through the pipeline from b to a takes time (that is why there is need for a stock of M_1 balances) and a fall in the rate of inflow into this circuit at b will not immediately result in a fall in the rate of outflow at a. In fact, if outflow at a must always equal inflow at b it would be impossible to make any change in M_1. Keynes never faced up to this contradiction.

[1] See *General Theory*, p. 174; also A. H. Hansen, *Guide to Keynes*, p. 134.

Looking back, with the advantage of more than 20 years of discussion, it is not difficult to see the source of the confusion in Keynes's mind. His primary concern was to dethrone the 'classical' theory, that the rate of interest was the price which brought into equilibrium the willingness to save with the desire to invest. His method of attack was to show that, since S was determined by I, it could not be an independent influence on the rate of interest. The confusion arose when this proposition was identified with a different one, namely, that the inflow of money to households at a must be equal to the outflow at b. Keynes feared that if he made any concession to the loanable funds theory, by admitting, for example, the possibility that consumers could increase their stock of idle balances by increased saving (reduced consumption), he was reopening the door to all the old fallacies of the classical theory.[1] This was, however, not a necessary corollary; and most modern Keynesians have given up the struggle against the loanable funds proposition, that an increase in the propensity to save will reduce the rate of interest.[2]

Although there is now almost complete agreement on what determines what in a macro-economic system (as summarized most elegantly in a set of multi-variate equations, such as those of Lange or Klein),[3] there remain some doubts about the exact relation between the rival theories of the rate of interest: the liquidity preference theory and the loanable funds theory. Hicks dismissed the problem by including both the demand for and supply of money and the demand for and supply of securities in a general equilibrium system, saying that it was merely a matter of convenience which equation was declared redundant.[4] Others have attempted to reconcile the two theories more directly.[5] Others again remain unregenerate partisans of one theory or the other.[6] My own view is that the liquidity preference and loanable funds theories do essentially amount to the same thing, and that the only reason why there has so far been any difficulty in proving

[1] This is made very clear in his article 'Alternative Theories of the Rate of Interest', *Economic Journal*, June 1937.

[2] See, for example, H. G. Johnson, 'Some Cambridge Controversies in Monetary Theory', *Review of Economic Studies*, No. 49, 1951–2, p. 97.

[3] Lange, 'The Rate of Interest and the Optimum Propensity to Consume', *Economica*, 1938; Klein, *The Keynesian Revolution*.

[4] *Value and Capital*, p. 161.

[5] The best known of the early 'reconciliations' were by Lerner, 'Alternative Formulations of the Theory of Interest', *Economic Journal*, June 1938, and Fellner and Somers, 'Alternative Monetary Approaches to Interest Theory', *Review of Economic Statistics*, Feb. 1941. More recent attempts to clarify the problem have been made by Johnson, op. cit.; Hahn, 'The Rate of Interest and General Equilibrium Analysis', *Economic Journal*, March 1955; Tsiang, 'Liquidity Preference and Loanable Funds Theories', *American Economic Review*, Sept. 1956; Rose, 'Liquidity Preference and Loanable Funds', *Review of Economic Studies*, 1957; and Patinkin, 'Liquidity Preference and Loanable Funds: Stock and Flow Analysis', *Economica*, Nov. 1958.

[6] The most openly uncompromising is Joan Robinson. See *The Accumulation of Capital*, pp. 402–3.

this convincingly has been that all of us have had in the backs of our minds the closed circuit conception of money flows outlined above.

The trouble caused by the closed circuit assumption is well exemplified by the two early attempts to reconcile the liquidity preference and loanable funds theories. Lerner's approach was to obtain the supply of loanable funds by adding saving to the total stock of money, and to obtain the demand for loanable funds by adding investment to the demand for money.[1] Then, since $S \equiv I$ by definition, he concluded that the excess demand for loanable funds is identical with the excess demand for money. Hence the two theories are the same. Fellner and Somers started from the other end.[2] They took the supply of and demand for 'claims' and added to each side of the equation the existing stock of money and total income (purchases or sales of goods and services). Thus again the relation between what they called the 'demand for money' and the 'supply of money' could be reduced to the relation between the supply of and demand for 'claims'.

Neither of these attempted reconciliations is satisfactory, since in each case *ex post* identities are added to *ex ante* equations. We are not presented with two independent *ex ante* theories, which can then be shown to be equivalent. In the Lerner case the error obviously arises from the assumption that the identity of S and I is equivalent to an identity of inflow and outflow of idle balances. But it is even more difficult to understand how Fellner and Somers were induced to add together stocks of money, flows of expenditure, and the demand for or supply of 'claims'. Both articles have this in common, that they suffer from a 'closed circuit' approach to the analysis of money flows.

Apart from the closed circuit itself there is another closely related source of confusion. Keynes always spoke of the economy as if it was all owned by one amorphous body—'the public'. Abstracting, quite legitimately, from the government and from the banks, he postulated that all the money in existence is held by 'the public'. It is 'the public' who have motives for holding money and whose liquidity preference is related to the total stock of money in the determination of the rate of interest. Thus, in terms of our money-flow diagram, it makes no difference whether the money is in the tank labelled M_2 or in the pipeline from b to a. It is all part of the money stock held by 'the public'. In Keynes's scheme, therefore, there was no question of money 'passing out' of the tank into circulation, since it was still held by the same consolidated group all the time. The only difference was that money might sometimes be 'active', so belonging to M_1, and sometimes be 'idle', so belonging to M_2.

An important breach in this sytem of thought was made when Keynes admitted the existence of a 'financial' motive for liquidity, for this was a

[1] Op. cit. [2] Op. cit.

motive that could only be held by entrepreneurs.[1] Although he was at pains to show that the requirements of money for finance would not normally fluctuate greatly, he admitted, in principle, that a movement of funds into the hands of entrepreneurs for financial reasons would reduce M_2, and hence—at least temporarily—raise the rate of interest. But once this is admitted the closed circuit is broken and the sluice-gates (if not the flood-gates) are open.

I propose now to outline what I believe to be both a more realistic and a more helpful model of the system of money flows. We shall continue to abstract from the government and—for the time being—from the banks and other financial intermediaries.[2] We shall also consider a closed economy. But in this model allowance is made for two domestic sectors, 'businesses' and 'households', and we picture their relationships as follows—

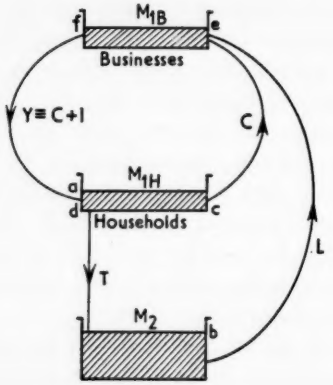

FIG. 3

Both businesses and households hold active (M_1) balances: M_{1H}, active household balances, are determined by the rate of planned consumption expenditure; M_{1B}, active business balances, are determined by the rate of planned expenditure on output, i.e. by both C and I. The remainder of the total stock of money is held by households in a separate 'tank' of idle balances, M_2. We assume in this model that only businesses invest and only households save. The whole of business net profits is paid out to households, together with other factor payments for the production of $C+I$. Net investment, within the period considered here, is financed by loans (L) from households, which they make out of idle balances (M_2). We assume that the equity holdings in businesses arose at an earlier date,

[1] See 'The "Ex-Ante" Theory of the Rate of Interest', *Economic Journal*, Dec. 1937.
[2] The stock of money will, therefore, be assumed to be fixed.

and that no new issues of equity capital are now being made. This assumption can be withdrawn in a more complicated model. As households receive their money income (Y) they distribute it initially between M_{1H} and M_2, the former being determined by their consumption plans and the latter by their saving plans. The part of income which is transferred to M_2 is called T. This transfer may, in principle, go in either direction.

Within this framework, we shall now consider the two theories of the rate of interest—liquidity preference and loanable funds. It is obvious that by introducing two extra 'tanks' and one extra circuit (through T, M_2, and L) we have removed much of the restrictiveness of the old closed circuit model. In our model there remains one fairly closed circuit, namely, the flow from c to a, which may be called the *consumption circuit*; but even this is not absolutely closed since the money flow at point c need not correspond exactly to the money flow at point a. Business balances (M_{1B}) may fluctuate, absorbing or releasing part of the total money supply.

It is important to remember in this connexion that our model is a model of money flows, not of income and expenditure flows. If all transactions were for cash these two would correspond; but since there are time lags between purchases and payments money flows may differ from income or expenditure flows. This point is obvious in the case of the second circuit introduced in our model, from point d to point e, which may be called the *lending circuit*. Money may flow anywhere from d to e, or indeed from a to f, without affecting directly either income or expenditure. Money expenditure out of loans begins only at f, when businesses pay out funds for new capital equipment, which become in turn the money receipts of households by flowing into the household tank at a. If we were to assume that households always pay cash for consumption goods and businesses always pay cash for investment (which they do not in fact, because the profits on investment are necessarily paid out to households after a time lag) then the national income per unit of time would be equal to the sum of the flow of consumption expenditure from c to e and the flow of investment expenditure from f to a. For the sake of convenience in the following discussion we shall make this assumption and, in addition, we shall assume that the rate of business cash payments for the services of households in providing consumption goods is identical with the rate of cash payments by households for consumption goods; in other words, we assume that the consumption circuit is closed from c to a, so that household receipts at a are equal to current national income, Y, made up of consumption and investment expenditures in the usual way.[1]

We are now free to concentrate our attention on what happens in the lending circuit. Within this circuit there are two points of decision: first,

[1] These assumptions can, of course, be relaxed if more complex cases are to be considered.

households must decide how much of their current income receipts (Y) to keep in their active balances M_{1H}, with a view to their outflow at c, and how much to transfer (T) to idle balances (M_2); and secondly, they must decide how much of their idle balances to lend to businesses, while businesses must decide how much they wish to borrow, the two parties between them determining the rate of flow along the pipeline from b to e. It is obvious, of course, that 'idle' balances are not really idle, since there is likely to be a steady inflow of T and outflow of L, just as there is a steady flow through the active balance tanks M_{1H} and M_{1B}. Ideally, the M_2 balances should perhaps be called 'asset' balances and the M_1 balances 'expenditure' balances, since these are the purposes in relation to which the sizes of these balances are determined. By long usage, however, the terms 'active' and 'idle' balances have become accepted, and they may be retained so long as we understand what they really mean.

What will determine the allocation of funds, at the first point d, between M_{1H} and M_2? The decision at point d is essentially a decision about future consumption and saving, since we have assumed that funds are retained in M_{1H} only if they are intended for use in consumption. But does this mean that the flow T equals saving, S? Not at all. T is a *transfer* of funds from M_{1H} to M_2. It *may* be equal to S, and it *will be* in 'ultimate equilibrium', but it is not the same thing by definition. This is where our approach differs from that of Robertson, who defined T as saving. On the other hand, our approach also differs from that of Keynes, since he denied the possibility of households' directly increasing, by their own decision, the size of their M_2 balances. This was clearly wrong, since a decision to reduce the rate of consumption will result in a smaller allocation of incoming receipts (Y) to M_{1H} and a larger transfer (T) to M_2. This is a movement of funds that can be made at any time and it cannot be directly frustrated by any subsequent repercussions of these decisions on the rate of flow of income.

Thus the rate of transfer from M_{1H} to M_2 is determined by intentions to consume and intentions to save out of current money receipts, Y. These intentions may be related primarily to the level of current income, as Keynes assumed, or they may be influenced also by other considerations, such as expected income, the rate of interest, the stock of wealth in relation to current income, and so on. It is not necessary for our purpose to re-examine these issues here. It will be sufficient if we allow that, other things being equal, both current money income and the rate of interest will have some influence on the division of current receipts between planned consumption and planned saving, and hence between M_{1H} and M_2.

Consider next the determination of the flow of funds at point b. The position here differs from point d inasmuch as the ultimate decision does

not depend on the desires of households alone but also on the desires of businesses. Point d is a point of decision entirely within the household sector; point b is a point at which equilibrium must be established between the counteracting forces of supply and demand in the market for loans. On the household side, the supply of loans will depend on the rate of interest offered, the degree of risk, and the stock of M_2 available. On the business side the demand for loans will depend on the opportunities for investment and the rate of interest. If other things are equal, the supply of and demand for loans will be brought into equality by the rate of interest.

We are now in a position to place the liquidity preference and loanable funds theories within our framework. The loanable funds theory states that the rate of interest is determined by the supply of and demand for loans at point b. The supply of loans per unit of time consists of the flow T (Robertson's 'saving') plus any reduction in the level of M_2 ('dishoarding') plus new money (which is excluded from our analysis at this stage). The demand for loans is merely the demand for loans, and depends on the desires of businesses. Both supply and demand are responsive to the rate of interest and, other things (including income) being equal, can be brought into equilibrium by an adjustment of the rate of interest.

Keynes's objection to this theory was that the supply of saving and the demand for loans were not independent functions. In his mind they were linked together by a closed circuit, in which the demand for loans meant investment and the supply of saving meant saving, and these were always equal by definition. On these assumptions there was no function for the rate of interest to perform in bringing into equilibrium saving and investment. They could therefore be abstracted from the problem, leaving only the supply of money and the demand for money to govern the rate of interest. But once we abandon the closed circuit approach it becomes clear that the identity of saving and investment does not imply an identity of T and L. It is perfectly possible, if the rate of interest rises, for households to restrict their consumption and increase T while the demand for loans is falling, so that L declines. As a result M_2 will rise. This will not, of course, proceed very far without putting a stop to the rise in the rate of interest. Eventually equilibrium will be established between T, M_2, and L, but only after independent fluctuations in their values in response to changes in the rate of interest.

We can now see that the liquidity preference theory is really a special case of the loanable funds theory, namely, that case in which $T = S$ and $L = I$. This is the situation which Johnson calls 'ultimate equilibrium', where what has happened in the past continues to happen in the present, and so on.[1] In ultimate equilibrium consumers will have adjusted

[1] Op. cit., p. 91.

their stock of active balances, M_{1H}, exactly to suit their incomes and consumption expenditures, and the flow T will therefore equal S. Similarly, businesses will have adjusted their rate of current borrowings exactly to correspond to their rate of current investment. So $L = I$; and since $S \equiv I$, $T = L$. Then the rate of interest has no more function to perform in relation to T and L, and it can only be regarded as equilibrating the supply of and demand for M_2.

The above proposition can be demonstrated in more rigorous fashion with the help of ideas and a notation derived from Patinkin.[1] We shall consider the process of establishing equilibrium in the loan and money markets in a given finite period of time.

Let $L^d = L^d(Y,r)$ be the demand for loans by businesses and L^s the supply of loans by households. M^0 is the initial stock of money, consisting of M_1^0 in active balances and M_2^0 in idle balances. The demand for money *at the end of the period*, M^d, consists of the demand for active balances $M_1^d = M_1^d(Y,r)$ and the demand for idle balances $M_2^d = M_2^d(r)$.

Now the supply of loanable funds consists of transfers from active balances, T, plus dishoarding, or the difference between M_2^0 and M_2^d.

Thus $$L^s \equiv T + M_2^0 - M_2^d \quad [\text{where } T = T(Y,r)].$$

This gives us four independent equations (for L^d, M_1^d, M_2^d, and T) and three identities (for M^0, M^d, and L^s). There are altogether eleven unknowns (L^d, L^s, M^0, M_1^0, M_2^0, M^d, M_1^d, M_2^d, T, Y, and r) but two of them (M_1^0 and M_2^0) are assumed to be given initially. If either Y or r is also given, it will be possible to solve for the other with the help of one further equation.

To fill this gap we seem at first sight to have a choice between *two* equations, $L^d = L^s$ and $M^d = M^0$, one of which can therefore be 'dropped'.

On closer inspection, however, it will be seen that these two equilibrium equations are identical.

For $L^s \equiv T + M_2^0 - M_2^d$, as above,

and $$M_1^d - M_1^0 \equiv L^d - T.$$

Hence, if $L^s = L^d$, $M^0 = M^d$.

This means that, if the liquidity preference theory is expressed in the form $M^0 = M^d(Y,r)$, it is identical with the loanable funds theory, as expressed in the equation $L^d(Y,r) = L^s(Y,r)$. In either case, if Y is given, r is determined by the equilibrium relation.

But the strict liquidity preference theory goes farther than this. It

[1] Op. cit.

postulates that, for given Y, r is determined by the supply of and demand for *idle* balances. But this is only true in 'ultimate equilibrium', when Y has been constant for several periods. In this situation $T = S$ and $L^d = I$ and, since $S \equiv I$, $T = L^d$.

The loanable funds equilibrium equation

$$L^d = L^s = T + M_2^0 - M_2^d$$

then reduces to the form $M_2^0 = M_2^d$.

In other words, the strict liquidity preference theory is a special case (the 'ultimate equilibrium' case) of the loanable funds theory.

Allowance can now be made for the existence of banks and for consequential changes in the supply of money. Banks will be assumed to increase (or reduce) the supply of money in two ways: (1) by purchasing bonds from households, or (2) by making direct loans to businesses. Thus the supply of new bank credit enters the money-flow system either by direct injection into the M_2 tank or by increasing the L flow to businesses. In either case it represents an increase in the supply of loanable funds, L^s.

If we write ΔM for the change in total money supply in a given time period, the definition of L^s is now

$$L^s \equiv T + M_2^0 - M_2^d + \Delta M$$

and the equilibrium condition of the loanable funds theory becomes

$$L^d = L^s = T + M_2^0 - M_2^d + \Delta M.$$

On the Keynesian assumption of ultimate equilibrium this reduces to the form

$$M_2^0 + \Delta M = M_2^d.$$

Although it has been demonstrated that the liquidity preference theory is formally only a special case of the loanable funds theory, the practical economic significance of the two theories is undoubtedly very different. The loanable funds theory throws its main emphasis on to saving and its response to changes in the rate of interest, while the liquidity preference theory throws the main emphasis on to changes in the demand for idle balances. From a practical point of view I believe that the liquidity preference theory is more relevant to modern economic conditions than the loanable funds theory.

In the past two or three generations in Britain and America there has been an enormous growth in the volume of liquid funds in the hands of

private people, and more and more of these funds have been M_2 balances and proportionately less and less M_1 balances. In a recent article I made rough estimates of the size of each of these components of total liquid asset holdings in Britain.[1] Those figures suggest that the ratio of M_1 balances to M_2 balances, for households only, is of the order of 1 to 2. If this is so, it means that if households were to decide to reduce their consumption by, say, 10 per cent., which would entail more than doubling their current rate of saving, and they were to adjust their stock of M_1 balances in the same proportion, their stock of M_2 balances would be increased by at most 5 per cent. If, further, as I have suggested in the same article, households tend to keep a constant ratio between their M_2 balances and the total value of their capital, the effect of a 5 per cent. rise in the former would be to raise the prices of securities by approximately the same figure, so that the rate of interest on bonds would fall to the same degree. If the previous rate were 5 per cent., the new rate would be 4·75 per cent. Thus a very substantial change in the propensity to save would have only a very small effect on the rate of interest. A reduction in the rate of interest of this order could be just as well secured if the monetary authorities were to increase the total stock of personal liquid assets by $3\frac{1}{3}$ per cent., or if households were by some means induced to reduce their liquidity preference (in the sense of the desired ratio of M_2 balances to total capital) by 5 per cent.

In economies in which idle balances are as important as they are in modern Britain or America, 'rentier' societies we may call them, Keynes's theory is of greater relevance than Robertson's. In a Crusoe society, no doubt, the balance would go the other way. On different assumptions about the characteristics of the economic environment different theories become appropriate.

In the normal course of events the propensity to save is unlikely to shift to anything like the extent assumed in the above example. Its responsiveness to changes in the rate of interest is, so far as can be seen, rather slight. On the other side, also, the demand for loans is not generally thought to be particularly interest-elastic. In the loanable funds equation, therefore, neither T nor L^d is likely to respond very markedly to changes in the rate of interest. For any reasonably short period of time, say 3 to 6 months, both T and L^d will be of small importance in comparison with M_2^0 and M_2^d. These are additional reasons for preferring the liquidity preference theory to the loanable funds theory.

We may conclude, therefore, that, while in principle the loanable funds theory is correct, from a practical point of view the liquidity preference

[1] See 'Income, Assets, and the Demand for Money', *Review of Economics and Statistics*, Feb. 1958, p. 10.

theory throws the emphasis in the more appropriate direction, namely, on methods of influencing the rate of interest by monetary policy. It cannot, however, be denied that thrift and productivity will generally be of dominant importance in underdeveloped economies and in industrial economies which are working to full capacity.

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SOME REFLECTIONS ON THE NEW YORK NEW ISSUE MARKET[1]

By E. NEVIN

I

THERE is usually a wide gap between the academic economist and the market-place activity which he is apt to write and theorize about. Relatively few specialists in industrial relations, for example, have actually conducted wage negotiations or called men out on strike; relatively few international trade specialists have administered a consignment all the way from Penang to Peru; and so on. All this is largely inevitable, but the gap which emerges between academic discussions of economic processes and the processes themselves is nevertheless regrettable and occasionally calamitous.

In a modest attempt to bridge this gap in one particular field, this article sets out some reflections on the actual process of raising a loan in the New York market on behalf of a foreign (i.e. *vis-à-vis* the United States) government. Although an academic now beyond hope of salvation, I was recently involved in the preparations and negotiations underlying such a loan in the capacity of a very temporary civil servant. What I have tried to set down in what follows, therefore, is not so much a comprehensive description of the New York new issue market as a series of reflections on some of the points which impressed an academic temporarily living in the world of applied finance. (The subject-matter is not without some interest and importance in its own right, however, given the continuing need of under-developed territories for external capital, and the increasing stress in the United States on private, rather than public, foreign investment.) Most certainly it does not purport to reflect the views or attitudes of my official colleagues of that time (none of whom suffered under the dual disability of being an academic normally resident in the United Kingdom), or of the government concerned. The discussion is concerned solely with the procedure whereby foreign governments float bond issues in the New York market, and on occasion I have tried to illustrate points by reference to recent issues in New York by various foreign governments.

II

The first point of (at least apparent) contrast between the New York and London markets is that, in the former, negotiations are carried on by the

[1] As is indicated in the text, my interest in, and knowledge of, the subject-matter of this article originates with my association with a bond issue floated in the New York market by a government which it was my privilege to be serving at the time. It must be specifically understood, however, that any views expressed or implied in the article are wholly personal and should under no circumstances be attributed to that government.

borrower directly with underwriters, rather than through some intermediary such as an issuing house or merchant bank. The prospective borrower in New York must therefore find a managing underwriter who is prepared to take sufficient interest in the proposition to embark on detailed discussions and, in due course, to sound out the market with a view to selling the issue. Even at this early stage, therefore, the borrower has to indicate the order of magnitude he envisages for the loan and its term of life. Assuming that the managing underwriter regards the thing as a feasible proposition, the negotiations which follow will result in a gradual narrowing of the limits of both these estimates and in reaching agreement on points such as those discussed in the succeeding sections.

A second, and related, point of contrast is that the New York underwriter *purchases* the issue or arranges for sub-underwriters to purchase it, rather than merely underwriting it in the British sense of the word. The normal bond issue in New York, in other words, is essentially a form of the 'issue for sale' technique, with the managing underwriters arranging for the sale of the entire issue and usually purchasing a substantial share themselves for subsequent resale in the open market. Further, the managing underwriter will normally regard it as part of his function to support the price of the bond in the market for some time after the date of issue, and especially to offset the effects of sales by purchasers who are out for a quick profit through sales at a price somewhere between the public issue price and the sale price to underwriters.[1]

It is argued that, because of these additional risks and responsibilities assumed by the New York underwriter, higher commissions are justified than would be expected in London.

As will be seen from Table I, the usual underwriters' spread on a foreign government issue nowadays is certainly substantial, in no case being less than 2½ per cent. and rising to as much as 3½ per cent. in the case of the extremely expensive issue by the Federation of Rhodesia and Nyasaland. The 'agency' function of the managing underwriter is further stressed by the fact that the issuer is almost invariably required to make a 'contribution' to his expenses in sounding out and securing a market; nowadays this appears to be seldom below $25,000 and may well be double this figure. There does not appear to be any clear relationship between the amount of this 'contribution' by the borrower and the size of the issue,[2]

[1] This despite the Rules of Fair Practice of the National Association of Securities Dealers Inc. Bonds sold to European purchasers are usually covered by a special European Selling Agreement under which dealers undertake not to resell them in the United States or to persons resident in the United States. One incidental, and rather astonishing, feature of the market which may be mentioned here is that in recent years the main purchasers of foreign government issues in New York have not been American investors at all, but financial institutions in Western Europe!

[2] The Amsterdam and Belgian Congo issues in March and April of 1958, for example,

but in discussions between borrower and underwriter on this rather delicate matter the relative largeness (or otherwise) of the underwriting spread usually emerges as a relevant factor.

It seems doubtful, however, whether there is much difference in actual practice between the roles of the New York managing underwriter, on the one hand, and the London issuing-house-cum-underwriter on the other, despite the extent to which these differences are stressed in discussions of commissions and expenses. A contrast with London which is much more substantial, however, is the degree of legal regulation with which the business of a new issue is surrounded. To someone acquainted with the procedures of the London market, the maze of regulations and legal requirements surrounding a New York issue borders upon the incredible. The governing statute in this context is the Securities Act of 1933, which has as its declared purpose 'To provide full and fair disclosure of the character of securities sold in inter-state and foreign commerce and through the mails, and to prevent frauds in the sale thereof, and for other purposes.' The Act in itself is a fairly modest document, running to some 40 pages of small type, but unfortunately section 19(*a*) contains the fatal provision that the Federal Trade Commission[1] was authorized: 'From time to time to make, amend, and rescind such rules and regulations as may be necessary to carry out the provisions of this title. . . .' The consolidated general rules and regulations issued as a result of this open invitation comprised, in June 1958, a compact booklet of 59 pages, but other special regulations merited individual volumes of their own.[2]

The upshot of all this is that raising a loan on the New York market is essentially a legal process; the economist involved in the issue will find himself sitting at conference tables surrounded almost wholly by lawyers. The borrower himself will naturally be accompanied by his own law officers; because of the complexity of the Federal law governing new issues, however, the services of New York counsel, and particularly of one of the specialist legal firms dealing with financial matters, will usually be required. On the other side of the table will be representatives of the managing underwriters, and these in turn will be accompanied by a battery of their own counsel. The discussions and argument will be conducted in legal terms, and the economist will find that economics is hopelessly intermingled with, and almost buried by, legal phraseology and legal concepts.[3]

were identical in size, coupon rate, and maturity, their issuing prices were within half a point of one another, and occurred within about six weeks of each other; yet underwriters were reimbursed $15,000 for the first and $50,000 for the second.

[1] Replaced by the Securities and Exchange Commission by sections 210 and 211 of the Securities Exchange Act of 1934.

[2] Regulation A, for example, involved a booklet of 48 pages in June 1958.

[3] There are, of course, a large number of publications which are by way of being commentaries on the Securities Act and the rules and regulations issued under it. An example of the

The end-product of all the negotiations which are involved is basically a Registration Statement comprising a prospectus of some thirty or more printed pages, and a fair number of other legal documents in support of it, which must be lodged with the Securities and Exchange Commission (S.E.C.) for a period of 19 days before registration becomes effective and the securities may be sold. This period of nineteen days may be lengthened if the S.E.C. issues a 'deficiency letter' to the prospective issuer, requesting further information or explanation, either in writing or through the means of a personal cross-examination by the S.E.C. If such a deficiency letter is issued and an amended Registration Statement submitted, the 'incubation period' of 19 days theoretically begins again, although in actual practice this formality is normally waived. The Registration Statement, however, is by no means the only document with which the negotiations

TABLE I

Some Recent Foreign Government Bond Issues in New York

Date of issue	*Borrower*	*Coupon interest rate* %	*Nominal amount of issue* $mn	*Issue price*	*Actual amount of issue before expenses* $mn.	*Underwriters' discount* %	*Additional underwriters' expenses* $000	*Estimated other issue expenses* $000	*Estimated total expenses* $000	*Estimated total expenses* % of actual issue
Sept. 1957	E.C.S.C.	5¼	25·0	100	25·0	3½	n.a.	n.a.	n.a.	n.a.
Jan. 1958	South Africa	5½	15·0	98·5	14·8	2¾	40·0	47·0	499·5	3·4
Mar. 1958	Amsterdam	5¼	15·0	99·0	14·9	3	15·0	55·0	519·6	3·5
Apr. 1958	Belgian Congo	5¼	15·0	98·5	14·8	2¾	50·0	60·0	522·5	3.5
Apr. 1958	Australia	4¾	25·0	99·0	24·8	2½	n.a.	n.a.	n.a.	n.a.
May 1958	Oslo	5½	8·0	97·5	7·8	3	25·0	54·0	319·0	4·1
June 1958	Rhodesia & Nyasaland	5¾	6·0	97·5	5·9	3½	40·0	33·0	283·0	4·8
June 1958	E.C.S.C.	5	35·0	97·0	34·0	2¾	n.a.	127·0*	962·5	2·8
Sept. 1958	Norway	5¼	17·5	98·0	17·1	2½	n.a.	44·0	452·3	2·7
Oct. 1958	Australia	5	25·0	97·5	24·4	2½	n.a.	n.a.	n.a.	n.a.

* Includes unknown amount paid to underwriters in partial reimbursement of expenses.
Source: Registration Statements (Prospectus and Supplemental Information) relating to issues concerned.

will be concerned. (In the case of the issue with which I was connected, I have the good fortune to possess a complete set of the documents involved in the issue,[1] handsomely bound in a volume which measures approximately 8½ by 11 inches and is 2½ inches thick.) Some of the typical points of substance raised in the course of such negotiations will be discussed in what follows. Through it all, however, the economist caught up with a process of this kind finds himself involved in cross-examination by highly skilled lawyers on economic concepts, on statistics and on what

economico-legal concepts with which a foreign issuer has to grapple in New York may be quoted by way of illustration. For the purposes of Regulation S–X, issued under the Securities Act, the term 'fifty-per-cent owned person' means 'a person in respect of which the registrant owns directly or indirectly approximately 50% of the voting securities and approximately 50% of the voting securities of such person is owned directly or indirectly by another single interest'.

[1] Numbering 141 in all.

might be called the general applied economics of the borrowers. The cross-examination proceeds throughout the day in whatever Wall Street office his counsel or underwriters occupy; in the small hours of the succeeding night and early morning the economist will find himself feverishly engaged in checking, seeking, and recasting statistics and analysing, drafting, and redrafting statements and estimates ready to face the fray the following day.[1]

All this refers to the Federal law governing the issue of securities on the New York market. In addition to this, practically every state in the United States has its own legislation on the same subject, many of them having their own equivalent of the S.E.C. By and large these 'blue sky laws' do not seriously trouble the issuer, since the requirements of the Federal law are so rigorous that in meeting them the borrower *ipso facto* complies with the blue sky laws of practically every state in the union. So far as the borrower is concerned, therefore, the existence of the blue sky laws is reflected merely in an additional legal fee (usually of the order of $3,000) required to ensure that the security he is proposing to issue is a legal investment in the various states of the union. The foreign government raising a loan in New York, however, may run foul of the requirement of certain states that any non-resident issuer is required to consent to 'service of process' before the securities he is issuing may become a legal investment in that particular state. By this is meant that the borrower agrees to submit to the process of the Courts of the state in question. Since sovereign governments cannot constitutionally abrogate their sovereignty in this manner, this is theoretically an important stumbling block to the prospective government borrower in the United States, but its practical significance is not great.

III

It would be impossible to discuss in detail all the points which arise in the course of negotiations which will normally occupy four or five months and may extend considerably longer. A few of the points of substance relating to the general terms under which foreign governments may expect to issue securities in the New York market are discussed in this section, however, in order to indicate the kind of hurdles which an overseas government will possibly be required to surmount if it is to raise capital

[1] The environment of the negotiations is highly reminiscent of Lord Robbins' smoke-filled committee rooms. Nothing, in my view, is more apt to come into the mind of the unfortunate economist caught up in these legal battles than the lines of Goethe:

> Who never ate his bread in sorrow;
> Who never spent the midnight hours,
> Weeping and waiting for the morrow—
> He knows you not, ye heavenly Powers.

in the United States. In the next section some points concerning the preparation of the prospectus itself will be discussed, since these are of particular interest to economists. The task of the economist in an operation of this sort is primarily to bring together, and be cross-examined on, all the material which goes into a prospectus, although law and economics are so hopelessly intertwined in this process that he is never free to regard himself as unconcerned even with what appear to be highly technical legal matters.

The first general requirement which is frequently asked of a foreign borrower in this market is that there should be some specific allocation of revenues to the service of the loan—that is to say, in the case of a government, that specified tax revenues will be allocated first to the payment of interest on, or repayment of the principal of, the loan now being raised, and will not be used for any other purpose unless and until that debt service has been discharged. This is an undertaking which most governments, certainly those which follow the British-type system of public finance, cannot possibly accept; it runs directly counter to the basic principle that the expenditure of a government should be kept entirely independent of specific sources of revenue. In general, therefore, pressure is brought to bear on the borrower to provide some other guarantee that the loan will be properly serviced. In the present days of exchange instability and actual or potential exchange control, the American borrower is clearly much concerned with the possibility of a renewal of a dollar crisis and the inability of a borrower to find sufficient dollar exchange to service the debt. Practically every foreign government therefore finds itself required to give an undertaking relating to exchange control.

The city of Amsterdam, for example, states in its prospectus that the Netherlands Bank had advised the city that it would grant to it a licence authorizing it to obtain the foreign exchange required for the payment of interest on the principal of its bonds. Similarly, the city of Oslo stated in its prospectus that the Bank of Norway had advised it that under all circumstances, and notwithstanding any existing or future exchange control restrictions, the Bank would authorize the city to obtain United States dollars required for the service of the bonds, and that such authorization was irrevocable. The insistence on guarantees of this kind is particularly marked in the case of sterling area countries, since the mechanism of the sterling area does not appear to be particularly well understood in Wall Street. Thus the Government of the Federation of Rhodesia and Nyasaland, in its New York issue in 1958, undertook that, if it became necessary for the service of the bonds it was issuing, it would cause gold to be shipped to the Federal Reserve Bank of New York with instructions for it to be sold in order to discharge its obligations on the bonds; this is an

undertaking which must have given considerable pain to the authorities in London.[1]

In the case of borrowers who are not able to offer to pledge gold in this way, a practice which is by no means uncommon is to require the borrower to retain in New York City a special account, usually equivalent to the debt service over a specified period (e.g. 12 or 18 months), which will be a kind of guarantee to the lender that, should exchange control prevent the borrower from obtaining dollars from current earnings, there would be an accumulation of dollars from which the service of the debt could be temporarily discharged. The result of this is, of course, that a fairly substantial part of the proceeds of the loan is in fact locked up in New York City and never available to the borrower for the finance of capital formation.

A second general condition which is inevitably required of foreign borrowers in this market is that, where the issuer is a taxing authority, an undertaking is given that the securities now being offered will be free of all taxes currently being levied or to be levied at any time in the future. This is an automatic provision in a foreign government loan in the New York market, and it would be impossible for an issue to be considered unless such an undertaking were given. In the odd case where the borrower is a taxing authority subject to a higher authority (as would be the case, for example, with a unit territory forming part of a Federation) the issuer will usually be required to undertake not merely that it will not itself levy taxes on the interest or principal of the loan now being raised but also to give a guarantee that it will meet any tax liabilities imposed on the holders of the bonds by the higher tax authority to which it is itself subject.

A third striking feature of the general conditions which govern foreign loans in the New York market at the present time is related to Sinking Fund provisions. There is a sharp contrast in interpretation as between New York and London in this connexion. In London, a Sinking Fund means an accumulation year by year of funds which are invested until such time as the loan against which the Sinking Fund is held has matured, when the invested Sinking Fund is realized, together with the income that has accrued on the investments, and the proceeds used in partial or full discharge of the repayment liability. In New York, however, the term Sinking Fund has an entirely different meaning, and most certainly does not involve the investment of funds set aside for future debt repayment. In this market, a Sinking Fund means a repayment of the securities concerned before the date of final maturity; the funds which a borrower is required to set aside to his Sinking Fund are not invested but are used to

[1] It will be recalled that the Government of New Zealand also pledged a substantial part of its gold reserve in a similar way in order to raise funds in New York in 1958.

buy up the issue on the open market or for calling specified securities whose numbers are drawn in a lottery. A Sinking Fund of this kind is inevitably demanded of a foreign government borrower in New York.

This has several implications. First, it means that a Fiscal Agent has to be employed to administer Sinking Fund payments: to conduct the lottery of annual or semi-annual drawings of bonds, to arrange for advertisements in two newspapers displaying the numbers of securities which have been called for repayment by the Sinking Fund, and to generally handle the complex accounting and banking transactions involved in redeeming debt. (A Fiscal Agent within the Borough of Manhattan is in any case a requirement for a foreign issuer in this market for routine interest payments and transfers; the operation of a Sinking Fund, however, adds quite substantially to the duties of the Fiscal Agent, and therefore to the fees which the borrower will be required to pay to that agent.) A second, and more important, implication is that, given the relatively high rates of Sinking Fund which are common in the market, the true length of life of a loan is seldom very similar to the nominal life. For example, a Sinking Fund commencing after four or five years, payable semi-annually, and of such amount as to retire 75 or even 100 per cent. of the loan by maturity is a usual combination of conditions. The effect of this is that a loan which is nominally of, say, 15 years maturity is in fact being steadily repaid from the 3rd or 4th year of its life onwards, and at such a rate that the average amount outstanding over the 15 years as a whole is considerably less than the total amount of the original issue. The issue by Rhodesia in 1958, for example, carried a semi-annual Sinking Fund commencing after twelve months from the date of issue, and of such amount as fully to repay the entire issue by the final maturity date; as a result, the actual average life of the nominally 15-year bonds was about 9¾ years.

The combined effect of Sinking Fund provisions of this kind, and perhaps of a special reserve deposit of the kind mentioned earlier, is that the true terms of an issue in this market may be significantly different, and inevitably more severe from the borrower's point of view, than is apparent on the face of the transaction. The Oslo issue, for example, which was nominally a 5½ per cent. bond of 15 years maturity was in fact, when allowance has been made for the actual amounts received by the borrower after payment of commissions and expenses and for the Sinking Fund provisions, a 5·9 per cent. bond of 10½ year average maturity. Similarly, the Rhodesia issue was nominally of a 5¾ per cent. bond running for 15 years; in actual fact it was a 6·3 per cent. bond running for an average of 9¾ years. All this is apart from the expenses of maintaining the apparatus of Fiscal Agent and Sinking Fund Agent throughout the life of the loan; these expenses are no doubt small in relation to the total sum being raised,

but they are nevertheless substantial outlays from the point of view of a relatively impoverished borrower.

IV

The economist engaged in an operation of the kind under discussion is usually concerned primarily with the preparation and redrafting of the prospectus. This, as has been already pointed out, is a fairly lengthy document running from about 25 to perhaps 35 pages of fairly small print. Its aim is to set out in considerable detail the political, economic, and financial background of the borrower; detailed regulations with regard to its contents, and the nature of their presentation, are laid down in and under the Securities Act of 1933. The prospectus itself is a document which will be argued over line by line, and word by word, during a period of probably several months. The prospectus with which I was personally involved ran to ten separate redrafts after it had been originally written; the great majority of these drafts are printed at considerable speed by specialist firms of financial printers who make a business of producing a prospectus of this order of magnitude overnight, the typescript or previous print being handed in late in the evening of one day and delivered, a completely new printed document, by early the following morning. I will do no more than mention two or three of the particular points of interest and contrast attached to the drafting and discussion of a prospectus of this kind.

The first striking, and immensely troublesome, feature of a prospectus for the New York market is the requirement of what is known (in typical and lamentable jargon) as 'expertization'. By this is meant that wherever a prospectus presents a fact or figure other than those drawn from some printed document (which is then appended as an exhibit in a sufficient number of copies to be accessible to all interested parties), that fact or figure must be personally vouched for by the person responsible for producing it. This does not mean merely that a document has to carry some kind of guarantee by a senior official having general responsibility for the staff who have prepared the prospectus. Unless the person concerned is directly acquainted with the preparation of the facts or statistics involved, and can answer for their method of derivation and estimation, his authority is considered to be unduly removed for the purposes of the Securities Act. In preparing a prospectus which covers the economic life of a community, therefore, ranging from the facts about its population, through the whole structure of its economy complete with national income estimates, trade figures, estimates of capital movements, and so on, right through to the precise details of its public finance and public debt, every fact must be authenticated by the person responsible for its production. The night-

marish quality of this requirement will be apparent to anyone acquainted with the way in which official statistics are compiled and the diverse nature of the persons and offices who contribute to, say, the national income accounts alone. Nevertheless every fact and statement has to be expertized, and numerous copies of a 'consent' signed by the 'expert' concerned for attaching to the Registration Statement. A prospectus may therefore be accompanied by anything from half a dozen to 20 or 30 consents signed by the individuals responsible for the preparation of its material.

This requirement is a good deal more than mere formality, since section 11 of the Securities Act states that if it transpires that a prospectus contained an inaccurate statement of fact, or omitted to state a material fact, the holder of any bond may sue, amongst other people 'every accountant, engineer, or appraiser, or any person whose profession gives authority to a statement made by him, who has with his consent been named as having prepared or certified any part of the registration statement'. The suit authorized under this subsection may be to recover such damages as the borrower may have suffered as a result of a decline in the market value of the security, the limiting amount being its full nominal value. Apart from this, however, the 'experts' involved in the Registration Statement are also liable to criminal proceedings by the Federal Government itself, since section 24 states that 'any person who wilfully, in a registration statement filed under this title, makes any untrue statement of material fact or omits to state any material fact required to be stated therein or necessary to make the statements therein not misleading, shall upon conviction be fined not more than $5,000 or imprisoned not more than five years, or both.' In the face of these requirements, of course, the general practice amongst most governments whereby an official document is issued not over the name of any individual person, political or official, but on the authority of the government as a whole, has of necessity to be abandoned. The actual persons engaged in preparing a prospectus, be they civil servants or private individuals, are therefore named in detail in a Registration Statement.

A second striking feature of the drafting and redrafting process which a prospectus must undergo is the tendency of the underwriters, and those acting for them, to avoid the least possibility of presenting the borrower in what might conceivably be regarded as an over-favourable light. The motivation here is readily understood, and is indeed highly laudable; the underwriter is equally liable with the 'expert' to the civil and criminal penalties imposed by the Securities Act for mis-statements of, or omissions to state, material facts. At the same time, the outsider is impressed with the extent to which Wall Street sometimes seems to expect a foreign

borrower to go almost to the opposite extreme and present himself in the *worst* possible light.

It will be appreciated that it is difficult to give examples of this apparent tendency without violating confidences, but perhaps I may give one example of a suggestion which was abandoned because it was inherently incorrect; it will be obvious that most instances of this type of proposal succeed or fail according to the relative importance attached to the matter by the borrower and underwriter respectively, rather than on grounds of inherent correctness or otherwise. The example I have in mind concerned an economy in which migrants' remittances from abroad were of some substantial magnitude in its balance of payments. Being aware of this, the underwriters took the trouble to extract the estimates of personal saving in the economy for the previous 5 years (from the personal income and expenditure table in the national income accounts), to set out beneath them the estimates of migrants' remittances into the economy during the same years (from the 'rest of the world' account), and to subtract the second from the first, so arriving at the statistical result that 'true domestic saving' in the economy was actually negative! As I have said, it was not difficult to show the theoretical absurdity of this procedure, but the incident illustrates the degree to which the desire to protect the lender in the New York market against misrepresentation and fraud has developed into an apparent tendency to misrepresent the borrower in the opposite direction.

A second example of this tendency will also serve to illustrate the tortuous path followed by negotiations which lurch from the solution of one difficulty into the simultaneous creation of another. The example is (deliberately) concerned with a matter of no great importance, but it will be understood that matters of crucial significance are only too often involved in similar processes. This instance relates to the debt record of the borrower; the Securities Act requires an issuer to indicate the extent of any default on interest or principal on its debt of which it has been guilty. The initial draft of the prospectus therefore contained the proud and definite statement that 'The government has always paid, on the due date, the full amount of principal and interest due on debt obligations issued or guaranteed by it, in lawful currency of the country where payable.' In the succeeding months, however, it occurred to some historically minded person on the other side of the negotiating table that, the borrower being a country which had been involved in both World Wars[1] it would (not unnaturally) have refused to pay out interest on external debt in the hands of their enemies during time of war. Consequently, the revised draft put to the representatives of the borrowers when they next gathered round the conference table added the words 'except only for such persons

[1] On our side, I am glad to say.

in enemy and enemy-occupied territories during the World Wars as were subject to special wartime restrictions'.[1]

Initially this seemed a fair enough point, but in the relative peace of their offices after their return, the borrower's legal officers realized that their only external debt was payable in London sterling, and no stoppages had ever occurred. If in fact some unfortunate German or Japanese holder of its debt (in fact there never had been any identifiable as such) had then had the payment promptly impounded by the gentlemen in Whitehall, this was hardly the borrower's responsibility. No default *by it* had occurred. So, in triumph, the sentence was redrafted to read 'The government has never defaulted on any debt issued or guaranteed by it.' This was a masterpiece of brevity which events proved too good to last. In the next round of redrafting the point about enemy debt-holders was well taken, but it was put to the borrower that 'never' was a big word. For example, during the seventeenth century the borrowing country had been a colonial territory, and at one stage its government had fallen into the hands of a gentleman remembered in history primarily for highly illicit activities, including larceny on the grand scale. Could the representatives of the borrower be *quite* certain that at no time in this distant, and ill-documented, past had this gentleman welshed on some debt while still *de jure* holding the reins of government? The answer was obviously that they could not, and had perforce to agree that the statement be reworded. To their horror, when the suggested revision appeared it ran 'In so far as the Government knows, it has never defaulted on any external or internal debt issued or guaranteed by it.' This was a calamitous piece of evolution; the statement now clearly implied not only that there might have been some default but that the government probably would not even know (or care) about it. Some improvement was secured during the next round by obtaining agreement that the phrase 'In so far as it knows' should come at the end, rather than the beginning, of the statement, but to some extent the unfortunate implication necessarily remained. Further, at a later stage it was pointed out that the Securities Act required a positive statement with regard to default during a period of 20 years preceding an issue, although it was held that such a statement would be in addition to, rather than in substitution of, the general statement of debt record over the past as a whole. The final version therefore ran: 'There has been no default during the past 20 years on any external or internal debt issued or guaranteed by the Government, and insofar as it knows there has never been any such default prior thereto.' It will be seen that an implication is left that, while the borrower

[1] A form of words actually to be found in the prospectus issued by the Union of South Africa in connexion with its New York issue of December 1955. For the reasons indicated in the text, this qualification was probably incorrect.

can vouch for his record in the last 20 years, the less said about what happened 21 years ago the better. One is assured that statements of this kind are so familiar in the New York market that they are not in fact interpreted in this way, but the fact remains that it is an unfortunate manner in which to describe the fiscal record of a government having a long and consistently honest debt history.

This long account has been concerned, I repeat, with a single sentence, dealing with a simple and straightforward matter of fact; the possibilities opened up when treatment of this kind is meted out to more complex and delicate matters can easily be imagined. Undoubtedly it is right and proper that prospective investors should be protected against misrepresentation, but one wonders whether this combination of highly detailed legislation, on the one hand, and an astonishingly literalistic interpretation of words, on the other, secures this end only at the cost of another type of misrepresentation.[1]

A third feature of the New York prospectus which impresses the outsider is the quantity of material which is apparently necessary, as well as the literalism with which it is interpreted. In length it will seldom run to less than 30 full-size printed pages and may well exceed 50. The obligation to ensure that there is no omission of a material fact is so interpreted as to involve the presentation of *any* fact which *anyone* might consider material. Even so, one wonders on what reasoning it was considered necessary to inform the prospective purchaser of South African bonds, for example, that 'The Union lies between the latitudes of 22° and 35° south, and for the most part enjoys a temperate climate. The mildness of its climate is due in part to the topography of the country. . . . The mean annual precipitation over the Union is about 17½ inches.' Or why did the purchaser of Amsterdam bonds need to be told that 'Amsterdam is visited every year by large numbers of tourists. Among the attractions are its many canals, its well-known art collections, some 4,000 buildings of historical interest and an internationally famous municipal orchestra' before buying a bond issued to finance an expansion programme of the municipal gas and electricity enterprise? Was it really a material fact to Oslo's issue to finance a hydro-electric project that 'the Oslo Cinemas (Oslo Kinematografer) operates 20 motion picture theatres in the central part of the City with a total capacity of some 15,000 seats'? And it is difficult to see the materiality of the tendentious, and somewhat offensive, statement in the Rhodesia and Nyasaland prospectus: 'The proportion of Africans who have fully adopted the western way of life is still small, but is growing year by year with the extension of educational facilities. . . .'

[1] There is also the consideration of whether adequate protection can in fact be given to the investor by this means, of course. I revert briefly to this point below.

There is a serious and practical point in all this, in that many of the poorer countries whose need of dollar capital is greatest are frequently deficient in statistics and statisticians, so that the imposition of this task of providing a highly detailed and comprehensive statistical document is a very serious matter. This is particularly unfortunate when the statistical material contained in the prospectus is expected to attain a standard of accuracy which, with the best will in the world, simply cannot be expected in such countries.

V

The issue of a bond for fixed-interest loans appears to be axiomatic for foreign borrowers in New York; there are few of the registered stocks so widely used in London for Commonwealth borrowers. This fact introduces its own special, if minor, problems. The printing and engraving of bonds nowadays involves a cost of around $15,000; some rather odd administrative questions also arise. For example, it is customary for the issuer's coat-of-arms to be engraved on the bonds, but, apparently as a protection against forgery, the New York Stock Exchange authorities insist that this must contain a human figure;[1] a foreign government without human figures in its coat-of-arms may therefore find itself issuing a bond in which its coat-of-arms is supported on either side by an obscure (and apparently Grecian) human figure supplied from stock by the security printers. (This is a matter not without potential embarrassment.) Again, every bond must bear two signatures on the part of the issuer, one of which may be a facsimile, but one of which must be an original. A $15 million issue taking the form of $1,000 bonds will therefore require 15,000 manual signatures on the part of some responsible official, a task of no mean dimensions; fortunately, for a small fee the issuer can hire a signature machine with the aid of which he can perform, say, 25 signatures simultaneously.

Two other points concerning the bond are worth mention here, although they concern the nature of the debt obligation itself, rather than the physical form of security. The first is that it appears to be common practice in New York to insist on an 'acceleration of maturity' clause. By this is meant an undertaking on the part of the issuer that if there is any default on any interest payment, redemption payment or Sinking Fund contribution extending over more than a very limited period (usually 15 or 30 days), the *entire issue then outstanding* will become repayable forthwith (usually, but not invariably, provided that the holders of a minimum proportion—15 per cent. is a favourite figure—of the outstanding bonds demand it). This is an extremely onerous provision, since it means that a borrower can be suddenly called upon to redeem the entire loan—years

[1] Animal figures are occasionally accepted if they are in sufficient detail.

perhaps before its maturity—as a result of some administrative error in its financial offices or some purely temporary foreign exchange crisis.[1]

One curious fact in this connexion is that apparently an attempt is usually made to extract this undertaking from foreign governments issuing bonds in New York, despite the fact that, being sovereign powers and therefore not subject to the jurisdiction of United States Courts, the clause can have no real validity in such a case. For this reason the attempt is usually resisted successfully, but not invariably so—as is witnessed by the fact that an acceleration of maturity clause is contained in the bonds issued by the Federation of Rhodesia and Nyasaland in 1958.

The second feature of the terms of bonds recently issued in New York by foreign governments relates to the general security underlying the loan. Apart from all other undertakings, the foreign borrower is invariably required to agree (in the typical language of the Oslo prospectus). 'That if it shall in the future secure any loan, debt, guarantee or other obligation now or hereafter existing, by any lien, pledge or other charge upon any of its present or future revenues or assets, the Bonds shall *ipso facto* share in and be secured by such lien, pledge or other charge equally and rateably with such other loan, debt, guarantee or other obligation.' This apparently simple and reasonable undertaking is not without its difficulties for a foreign government, in the case of which the undertaking is usually extended to any political sub-division or agency of the government. The point is that the undertaking could be held to effectively prevent a local authority or industrial development agency from, say, raising working capital from a local bank on the security of real estate, including industrial land, even if the amount involved was quite trivial in comparison with the bond issue. Even when this undertaking is restricted to assets pledged against external loans only, as is usually the case nowadays, difficulties of this kind do not entirely disappear.

VI

When all these matters have been finally hammered into an agreed shape, and if the underwriters are satisfied that they can find purchasers for such part of the approximate total of the issue as they prefer not to purchase themselves in the first instance, the borrower is ready to lodge his Registration Statement with the S.E.C. At this stage neither the amount of the issue nor its price will be shown in the prospectus. These will be agreed on the afternoon of the 19th day afterwards (assuming that no serious deficiency letter or stop order has emerged from the S.E.C.) by a process of negotiation between underwriter and borrower. The range of

[1] Indeed, it is not beyond the realm of possibility that some purely technical default could be engineered by persons anxious to exploit such a clause so as to cause grave political embarrassment to a government.

negotiations will be narrow on both matters, and is indeed largely confined to the issue price. The underwriter will have formed a view of the volume of bonds for which he can find purchasers, and the borrower will seldom be in a position to quarrel with this. The coupon rates are largely fixed by convention, and particularly by reference to similar issues in the recent past. It will be seen from Table I that excluding the Australian issues[1] all of the bonds carried coupon rates of between 5 and 5¾ per cent. and six out of eight carried 5¼ or 5½ per cent. Hence it is through the issue price that the state of the market on the day of issue, and the relative bargaining strengths of borrower and underwriter, reflect themselves.

An enormous amount of procedural work still remains to be done at this stage. Most of it is of a highly technical, legal kind—drawing up of a fiscal agency agreement, a countersigning agreement, a purchase agreement, a selling agreement, a European selling agreement and so on—which need not be discussed here.

Another process which has to be put in hand is an application to the New York Stock Exchange for the listing of the bonds, a *sine qua non* of a foreign bond issue. Fortunately the requirements here overlap largely, although not entirely, with those for registration with the S.E.C.[2] Three features of this stage of the proceedings are worth a brief mention, however.

First, the penalties of the Securities Act may be escaped by an underwriter if it can be shown that he was unaware of any mis-statement or omission in the prospectus and had exercised due diligence in looking for such. Hence the 19-day incubation period of the issue is used for a 'due diligence' meeting at which representatives of all the various underwriters, as well as the managing underwriter, assemble to inspect representatives of the borrower and (theoretically) to satisfy themselves by cross-examination that the prospectus is a full and fair statement of the facts. Such meetings, needless to say, appear to be largely formalities in the vast majority of cases, but one hears of exceptional instances in which an unexpected and well-directed question from the back of the room has let a positively lethal cat out of the bag.

More arresting is the procedure of a 'due diligence' visit by representatives of the managing underwriters to the borrowing country to assure themselves that the facts and figures provided by the borrower are accurate, a requirement which is in fact usually observed at a somewhat

[1] Australia enjoys unusually favourable terms in New York, mainly because it is a very familiar borrower in that market. Between 1946 and 1958 Australia floated nine separate bond issues in New York.

[2] An illustration of the scale on which all these activities are conducted is provided by the fact that listing may involve the issuer in supplying the New York Stock Exchange with anything up to 900 copies of the prospectus.

earlier stage.[1] How effective this process can be is also a rather open question,[2] but it certainly has a salutary effect on the statisticians of the borrower's staff.

The second feature of this stage of the proceedings is that the rating agencies now play a highly influential role. The two New York agencies—Moody's and Standard and Poor—are invited to examine the registration statement,[3] and, if necessary, to cross-examine representatives of the borrower. It seems that the success or otherwise of an issue can be significantly influenced by the rating allotted to it by these agencies, a feature without parallel in the London market at the present time.[4]

The third features of this stage is that there is formally a complete ban on anything which could conceivably be interpreted as an attempt to sell the bonds. The prospectus bears on its front page, in large type, the warning: 'These securities have not been approved or disapproved by the Securities and Exchange Commission nor has the Commission passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offence.' This regulation—that it is illegal to offer a security for sale until the S.E.C. has approved the issue after the requisite 19 days—is honoured (in a formal sense) to a degree which, to the outsider, borders upon the ridiculous.[5] Despite this, it would appear to the ignorant bystander that it is during this period that the issue is for all practical purposes sold in everything except the legal sense. No formal offer is made, and no formal undertaking to purchase is entered into; legally the managing underwriter comes to the 20th day after registration with the whole task of selling the issue still ahead of him. He has circulated the prospectus to various people purely for information; no doubt he has

[1] The timing depends to some extent on the calendar and relative climates of the borrowing country and New York City. The visit is justified on the ground that the *onus probandi* of due diligence having been observed is heavier for the managing underwriters than for other underwriters associated with the issue.

[2] The thought of a New York lawyer coming to check the accuracy of, say, official national income statistics is one which might well bring a smile to the wrinkled face of the hardest-bitten economist. I have to testify, however, that the reaction is not entirely justified in reality.

[3] One of them does not rate foreign government issues.

[4] The Society of Security Analysts established in London fairly recently has not, I think, attained a comparable degree of influence as yet.

[5] The ban extends to anything in the way of publicity for the borrower, as the following incident, which I once witnessed, will show. The scene, a press conference during this 19-day period to brief financial journalists on a forthcoming issue by a foreign government which I shall call Ruritania. (Ruritania has valuable deposits of a mineral I shall call copride.) Mr. X, partner of the firm of managing underwriters, is in the chair, flanked on one side by his own counsel and on the other by the issuer's New York counsel:

Reporter: Mr. X—would you say that Ruritania is the world's largest producer of copride?

Mr. X (after a quick glance at counsel to right and left, both of whom shake their heads): You know I can't answer that question, Sir.

Reporter: Well then Mr. X, can you tell me, as a matter of information, which is the world's largest producer of Copride?

Mr. X: (Without hesitation) Ruritania, Sir.

held many conversations with banks, pension funds, insurance companies and so on, but on a wholly hypothetical basis. In fact, however, the die is morally, if not legally, cast during this interval. It is possible that the issue will be held up even after the 20th day, if the reactions obtained by the underwriters are adverse, or if the market suddenly worsens. But normally on the 19th day after registration the managing underwriter will have reached his conclusions concerning the volume of bonds he can market and the issue price at which he can sell them. No one can tell what price the issue will fetch when dealings commence in the open market, of course; an error of judgement on the part of the managing underwriter concerning the firmness of his prospective sales and the extent of the demand can cost him, or the borrower, dear.

VII

What conclusions can be drawn from this account? I repeat that it is an account of the points which strike an outsider, and an outsider interested in the New York market principally from the point of view of the role it can be expected to play in the provision of capital for the poorer underdeveloped countries of the world.

The first broad impression must inevitably be that this is an extremely expensive market in which to borrow. The complex, tortuous legal processes surrounding an approach to this market inevitably involve the borrower in considerable expense. The 'other expenses' (i.e. costs other than underwriters' commissions and expenses) of three recent issues by foreign governments in New York are shown in Table II.

TABLE II

*Estimated Miscellaneous Expenses of Foreign Government Issues in New York**

	Belgium 1957 ($30*mn.*)	*Australia 1957* ($25*mn.*)	*Rhodesia 1958* ($6*mn.*)
	$	$	$
S.E.C. Registration Fee	3,060	2,575	600
N.Y. Stock Exchange listing fee	3,600	3,000	720
Printing bonds	19,500	12,600	10,000
Printing Registration Statement and Prospectus	18,000	20,000	17,000
Authentication of bonds by Fiscal Agent	7,500	6,250	1,500
Other	4,340	10,575	3,180
	56,000	55,000	33,000

*Excluding underwriter's commission and expenses.

It will be seen that they are very substantial, and not closely related to the size of issue. (Rhodesia's expenses were 60 per cent. of those of

Belgium for an issue which was only one-fifth of the size.) Nor do they include any allowance for the expenses incurred on the borrower's side in connexion with an issue, and these can be very considerable in terms of the time and labour of senior officials as well as of cash.

But the market is expensive in its terms, rather than its procedure. Although the coupon rates themselves may not be significantly higher than would obtain, for example, in the London market on comparable issues, the actual terms after allowance for deposit conditions, for Sinking Fund requirements, for relatively low issue prices, and for the maintenance of an expensive and continuing fiscal agency arrangement become distinctly arduous for relatively poor countries. And on top of all these must be added the onerous and embarrassing undertakings and guarantees which are almost invariably demanded of the foreign borrower in this market.

The second main reflection which must come into mind is that the New York market, in its legislation and attitude, is singularly ill-suited to play the role of international lender for which the immense capacity of the American economy qualifies it and which the needs of the under-developed world so loudly demand. The statistical and factual requirements of the law, for example, are no doubt reasonable enough for United States corporate borrowers but become an appalling burden for poorer countries where the scarcity of statistical material is paralleled only by the even greater scarcity of trained personnel to process it.

At the same time it would be doing an injustice to the legislation, and all those who apply it, to neglect to record the fact that, applied as it is with consummate skill and thoroughness by the dealers and lawyers, it cannot fail to have a salutary (and, I believe, a lasting) effect on the borrower's information-producing machinery at all levels. No inconsistency or material inaccuracy could survive the gruelling process of examination and cross-examination involved in registration. The discipline of the process cannot be escaped and is not soon forgotten. If one has doubts about the fundamental effectiveness of the process in attaining its stated ends they can be summed up in the statement that one suspects that it would be much more difficult for careless and imperfect statements or statistics to survive this procedural marathon than complete and utter falsehoods. The reasonably honest borrower will be forced, inescapably, to be utterly and ruthlessly honest, to the last decimal point. But one doubts whether the scoundrel determined on fraud or default (assuming such to exist in this imperfect world—I have no personal knowledge on the point) would find any insurmountable difficulty in the mere mechanics of the procedure; a well-documented swindle is still a swindle, after all.

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DISGUISED UNEMPLOYMENT IN UNDERDEVELOPED ECONOMIES

By WILLIAM J. BARBER

In recent theoretical discussions of the underdeveloped economies, much attention has been given to the implications of dualism and disguised unemployment in various stages of the growth process. While dualism and disguised unemployment (in some form) are often said to characterize much of the underdeveloped world, common agreement on the definitions of these terms has not yet been reached.

This paper is concerned with the bearing of these concepts upon the formulation of an analytical account of the development process. For simplicity in presentation, one celebrated model of economic development will be used as a focus of discussion: W. A. Lewis's adaptation of the growth models of the English classical school.[1] In the course of this critique, several general problems of model-building in the underdeveloped territories can be illuminated.

I. The Major Properties of the Lewis Growth Model

Lewis begins his analysis by dividing the underdeveloped economy into two components: the capitalist sector and the subsistence sector. The former is defined as 'that part of the economy which uses reproducible capital and pays capitalists for the use thereof'.[2] The subsistence sector, on the other hand, embraces the traditional economic activities of the indigenous peoples whose production is concentrated in agriculture. With backward techniques the standard of *per capita* real income generated within the subsistence sector is low and often not much above the minimum required for survival. The problem of poverty in this sector may be further complicated by persistent population pressures—pressures so intense that, with the available techniques, the marginal product of labour in agricultural production may be zero or negative. This is the most widely discussed case of disguised unemployment.

Lewis then offers an account of the connecting links between the two sectors within the dualistic economic structure. The expansive force in the system is generated from the capitalist sector. As it grows, labour is withdrawn from the subsistence sector and enters capitalist employment. Lewis postulates that the real wage necessary to induce a voluntary movement of labour into the capitalist sector will be based upon the average

[1] W. A. Lewis, 'Economic Development with Unlimited Supplies of Labour', *Manchester School of Economic and Social Studies*, May 1954, pp. 139–91; 'Unlimited Labour: Further Notes', ibid. Jan. 1958, pp. 1–32.

[2] Op. cit., *Manchester School*, 1954, p. 146.

product in the subsistence sector. It is important to note that the floor to the capitalist wage is set by the average, not the marginal, product of labour in subsistence production. Even though labour's marginal product is zero or negative, subsistence workers nevertheless receive a positive return. This is possible because the total product is shared among the members of the family or kinship group. To compete with the subsistence sector for labour, the capitalist employer must, therefore, offer a wage which exceeds the average product by a sufficient margin to make movement attractive. The size of this margin cannot be precisely stated and will vary with local circumstances. In his 1954 statement Lewis estimated that a gap of 30 per cent. or more between subsistence earnings and capitalist wages would be required; this estimate was increased to a 50 per cent. differential in the 1958 article.[1] The size of the margin, however, is less important than the analytical relationship involved: i.e. that the capitalist wage is a function of the average subsistence product.

These considerations permit Lewis to maintain that the supply of labour available to the capitalist economy will be perfectly elastic at a low real wage in the initial stage of economic expansion. The capitalist sector can thus expand by drawing cheap labour into its ranks and, because this wage rate will be determined by the real income alternative offered by traditional agriculture rather than by the marginal productivity of labour in the capitalist sector, profits accruing to the capitalist will be high. Lewis further assumes that capital accumulation is sustained through reinvestment of profits, leading to a further withdrawal of labour from the subsistence sector.[2]

But the capitalist sector may not be confronted with a labour supply which is always perfectly elastic at a low real wage. As the sector grows, its demand for labour swells. Ultimately, the subsistence sector will be completely absorbed into capitalist production. Lewis recognizes, however, that several forces might produce higher real wages before this physical limit has been reached. For example, if the productivity of subsistence agriculture increased substantially—and, in particular, if marketable surpluses could be produced which would enable the traditional agricultural sector to acquire cash income—then the economic alternative to wage employment would become more attractive. The capitalist would be

[1] Op. cit., *Manchester School*, 1954, p. 150; 1958, p. 20.

[2] Throughout this portion of his argument, Lewis assumes conditions of a closed economy; with this assumption, it is difficult to find strong economic incentives to support sustained investment. At least for those portions of the underdeveloped world which possess resources for development (as opposed to being simply poor), it is both more realistic and formally less questionable to assume open conditions. Historically, much of the capital available to the capitalist economies of underdeveloped territories has been supplied from abroad for the development of export industries. In this process, capital accumulation need not depend upon an implicit assumption of Say's law.

obliged to raise the real wage even though the reservoir of labour from the subsistence sector had not been completely drained. Lewis minimizes the importance of this possibility, partly on the grounds that capitalists will have no enthusiasm for reform in peasant agriculture. (It should be noted that Lewis's choice of the label 'subsistence' to identify the indigenous agricultural sector is not ideal in this context. If the production of marketable surpluses is entertained as a real possibility, it would no longer be appropriate to regard traditional agriculture as always remaining at the subsistence level.)

Another potential disturbance to the initial level of real wages is implicit in Lewis's assumption of disguised unemployment. If the total product does not fall as labour is withdrawn, the average product received by those remaining in subsistence agriculture will rise. After a time, this improvement in real income may become noticeable and workers might insist upon a higher capitalist wage before offering themselves for employment. The impact of this effect may also be exaggerated. Two considerations might be introduced (although Lewis does not advance them) to support the original case for a perfectly elastic labour supply. First, if the initial margin between the average product in the subsistence sector and the real wage paid by the capitalist is large, it may be possible to compress this margin through time and thus to forestall improvement in real wages, despite the higher average product from subsistence production. In the initial stages of capitalist recruiting, the margin may, in fact, have been abnormally high in order to overcome the reluctance of the indigenous peoples to enter an unfamiliar environment. Later, when their tastes have become conditioned to the novel assortment of goods obtainable only with cash, the attractiveness of wage employment may be enhanced. The positive satisfactions offered by a money income may thus be intensified relative to the disutilities of employment. Further, in those cases in which the subsistence agricultural community is cut off from opportunities to exchange agricultural surpluses for cash, another factor may counteract upward pressures on the capitalist real wage as the average subsistence product increases. Higher average product in the subsistence sector will permit consumption there to rise. But if agricultural output (even though abysmally low by the standards of external observers) was still initially sufficient to satisfy the modest tastes of the indigenous peoples, it does not necessarily follow that an increased availability of foodstuffs will expand commensurately the economic satisfactions of the indigenous community. In more technical language, the demand for foodstuffs may be relatively inelastic, even in communities which are primarily self-sufficient.

The real wage, however, may still rise for reasons which are largely non-economic. Employers, for example, may be moved by humanitarian

considerations to increase the real wage although economic forces alone might not oblige them to do so. Alternatively, governments may introduce minimum wage legislation or encourage the formation of trade unions and support their wage bargaining efforts. Improvements in the real wage may therefore occur, even though workers from the subsistence sector might still be prepared to accept employment on the original terms.

Despite these qualifications, Lewis is still disposed to interpret the economic expansion process as falling into two separate and distinct phases. In the first, the supply of labour to the capitalist sector is perfectly elastic and the capitalist sector expands by progressively absorbing the subsistence sector. The second stage emerges when the absorption has been completed; the supply function for labour then becomes highly inelastic. The retention of these polar cases in his analysis is indicated in the following passage from his 1958 article:

> When capital catches up with labour supply, an economy enters upon the second stage of development. Classical economics ceases to apply; we are in a world of neo-classical economics, where all factors of production are scarce, in the sense that their supply is inelastic. Wages are no longer constant as accumulation proceeds; the benefits of improved technology do not all accrue to profits; and the profit margin does not necessarily increase all the time.[1]

II. Concepts of Dualism and Disguised Unemployment in the Underdeveloped Economies

Lewis has offered one interpretation of dualism in his division of the economy into subsistence and capitalist sectors. In recent literature on underdeveloped areas, other concepts have been introduced. Despite differences in emphasis, all of them have one feature in common. Each concept, at base, is concerned with the contrasts pervading the economic and social structure of those territories which have been drawn into the international orbit of trade and investment. The contrasts are reflected in extremes in income distribution, in productivity, in standards of technology, in education and cultural attainment, and often in conditions of health and sanitation. Some commentators upon this familiar pattern have treated dualism by drawing the lines of demarcation according to race; for others, the distinguishing feature has been political (i.e. whether the persons in question are members of the governed or the governing group); in still other cases dualism has been defined geographically and based on regional divisions within a country.[2] In most of the

[1] Op. cit., *Manchester School*, 1958, p. 26.

[2] J. H. Boeke's work gives major emphasis to cultural contrasts in defining dualism; see, for example, his *Economics and Economic Policy of Dual Societies as Exemplified by Indonesia* (Institute of Pacific Relations, New York, 1953). For an illustration of dualism viewed largely in regional terms, see A. O. Hirschman, 'Investment Policies and Dualism in Underdeveloped Countries', *American Economic Review*, Sept. 1957, pp. 550–70.

under-developed countries there is an element of descriptive truth in each of these classifications. For purposes of economic analysis, however, the essential consideration in the definition of dualism is the selection of categories which combine descriptive truth with analytical significance.

Lewis's formulation has the recommendation of high-lighting features of dualism which are analytically useful. But does his concept come sufficiently to grips with the realities of the underdeveloped world? We have already seen that the term 'subsistence' is not entirely satisfactory. But there is a more fundamental difficulty arising from the use of the 'sector' concept to distinguish the components of the underdeveloped economic system. This terminology implies that the capitalist and the subsistence 'sectors' of the underdeveloped economy are interdependent and vital to one another. In many parts of the underdeveloped world, this is not the case. The traditional agricultural economy of the indigenous peoples has an independent and autonomous status which Lewis's choice of terms obscures. Traditional agriculture is an economy in its own right, not just a segment of a larger whole. It functions according to its own peculiar sets of rules—rules which differentiate its economic processes from those of the capitalist economy. Moreover, the unique properties of traditional economic organization are likely to have a crucial influence upon the contacts of the indigenous peoples with capitalist employers. In order to emphasize these points, it will be both more appropriate and more accurate to discard 'subsistence sector' as an analytical concept and offer in its place the expression 'indigenous economy'.

This substitution has the further recommendation of drawing attention directly to the manner in which production is carried on within the indigenous economy. It is not the standard of real income afforded by primitive agriculture which is central to the concept of the indigenous economy. Of greater analytical significance is the organization of its productive activities and its internal division of labour.

It is now possible to set down the manner in which dualism within an underdeveloped economy may be more profitably treated. For present purposes, the economic system of a typical underdeveloped economy will be regarded as having two distinct components: the indigenous economy and the capitalist economy. In the latter, production and exchange are well organized and economic activity is often oriented toward export markets. In the dualistic structure, members of the indigenous population may, of course, derive part of their livelihood from both economies simultaneously or they may move between them at different times. Participation in the capitalist economy, however, need not require them to sever their ties with the indigenous economy.

In the indigenous economy, conditions of production must be carefully examined before judgements are made about disguised unemployment. Several types of disguised unemployment are possible. One form is purely seasonal in nature and its incidence is not confined to the underdeveloped economies. Agricultural production in any environment has a seasonal cycle which does not require the same intensity of labour input at all times in the year. Part of the labour force may thus be redundant in the slack seasons. The problem, however, is more serious if disguised unemployment exists in the form assumed by Lewis; i.e. the case in which the marginal product of labour is zero or negative. This situation may be described as 'general' disguised unemployment; it arises when population pressure has become so intense that additional labour (which in the traditional system is absorbed on the land because it has nowhere else to go) makes no addition to output. Thus, with fixed land resources and with constant techniques, aggregate output of agricultural commodities ceases to rise and may actually fall.

But a type of unemployment may be disguised within the indigenous economy which fits neither of the above cases. In indigenous economic organization, the family is normally the basic unit of production. Given its internal division of labour, the individual members of its labour force may not be homogeneous factors of production which are perfectly substitutable for one another. Instead, they often have specialized and well-defined tasks to perform. This phenomenon has important consequences if the adult male—the one member of the family team for whose services the capitalist economy creates a demand—is responsible for tasks which do not require his energies for substantial periods of time, e.g. for a year or longer. Disguised unemployment would then be more than seasonal; it would be better described as 'periodic'. In such circumstances, the marginal product of the male may not be correctly regarded as zero, even though he could absent himself from the indigenous economy for a considerable period without his absence being felt in a reduction in output. His contribution to production—although intermittent—may still be indispensable. Nor can the marginal product be adequately treated as the incremental output acquired by adding one more worker; it can be more appropriately defined as the change in aggregate output created by adding one more family productive unit.

The distinction between the two major types of disguised unemployment can now be set out with greater precision. 'General' disguised unemployment prevails when the number of productive units increases, on fixed quantities of land and with given techniques, to or beyond the point at which aggregate output ceases to rise. By contrast, 'periodic' disguised unemployment exists when individual members of the family productive

unit can be withdrawn for at least a full annual cycle without any sacrifice in indigenous production.[1]

The nature of 'periodic' disguised unemployment can be seen more clearly in a specific illustration. In some parts of Africa, the specialization of functions which has developed within the indigenous economies is such that the routine tasks of agricultural production are the lot of women. Upon them the burdens of the sowing, tending, and reaping crops are placed. Women, in other words, provide the current productive services required in the agricultural system. By contrast, adult males concentrate their efforts in maintaining the productivity of the community's basic asset—the land. As the land available to them is poor, these African communities have developed a form of shifting cultivation to compensate for the low natural fertility of the soil. In brief, the system characteristically takes the following form: once every two or three years, plots which have been cultivated are abandoned and replaced by new lands which are prepared by clearing bush, burning it, and allowing the ash to fertilize the soil. With this treatment, the fresh lands are capable of yielding a satisfactory crop for another period of two to three years, by which time fertility is again exhausted. The procedure is then repeated. The adult male in the family unit is responsible for the preparation of these new sites. In addition, he is normally called upon to construct new shelters as the location of the farming area shifts.

Within this system, there has developed a considerable surplus of male labour in the sense of 'periodic' disguised unemployment. It has been estimated that, on the average, adult males might absent themselves for as much as one year in every two without cost in conventional output to the indigenous agricultural community. If the time distribution of shifting locations within the indigenous economy were evenly spread, then one could assume that, at any single moment in time, roughly 50 per cent. of the able-bodied adult male population within the indigenous community might be absent—this percentage, in other words, would provide a rough measure of the volume of 'periodic' disguised unemployment in this situation. 'General' disguised unemployment, however, does not prevail. Indeed, the ability of the indigenous economy to maintain the conventional level of output depends upon the availability of fresh lands both for replacement purposes and for accommodating the natural growth in population.

III. An Alternative View of the Interaction Between the Components of a Dualistic Economic System

We are now equipped to put the conceptual apparatus discussed above

[1] It is, of course, possible for 'seasonal', 'general', and 'periodic' disguised unemployment to occur simultaneously. These cases, however, are analytically distinct. The analysis will be confined to situations in which they occur separately.

to work in an analytical account of the functioning of an underdeveloped economy in the process of economic expansion. It will be assumed that the economic system of the underdeveloped economy embraces both the capitalist and the indigenous economies. Further, we shall assume that the capitalist economy is open to international trade and investment. This assumption of open-ness parts company with conventional procedure, but it is closer to the realities of most underdeveloped economies.

In this system, production in the capitalist economy is initiated by the inflow of capital, skill, and entrepreneurship from abroad. In setting up its production process, the capitalist economy combines the capital which it provides with labour obtained from the indigenous economy. The two economies, from the outset, are thus brought into contact with one another.

On what terms will indigenous labour be prepared to accept employment? Lewis's reply was that the real wage must exceed the average subsistence product by an incentive margin. The alternative concepts (outlined above) permit a different answer: namely, that the indigenous male will accept wage employment when it serves to maximize the real income of his family group.

In a dualistic system, the real income of the indigenous family may be drawn from two sources: from production within the indigenous economy itself and from wage earning in the capitalist economy by its adult male members. When allocating his labour time, the adult male must weigh the gains in real income from one source against the possible loss in real income which might follow in the other. When 'periodic' disguised unemployment exists, temporary wage employment by the adult male does not reduce the agricultural output of the indigenous family. The additional income obtainable from money wages earned by the absent member is a net gain for the family. In these circumstances, a low real wage may succeed in attracting workers into the labour force of the capitalist economy. But should employers wish to draw off manpower beyond the limits of 'periodic' disguised unemployment, then the adult male would accept wage employment only on much improved terms—in fact, only on terms which would more than compensate for the loss in real income which his absence from the indigenous economy would entail.[1]

[1] This argument postulates a form of rational economic behaviour in which the adult male members of the indigenous population weigh the gains and the costs of dividing their time between the two economies. Economic rationality, defined in this way, should be contrasted with the narrower and inadequate view that the indigenous worker should be expected to maximize only his money income. Expatriate entrepreneurs in underdeveloped countries often hold this expectation and infer from the high rates of labour turnover that indigenous employees are indifferent to new economic opportunities. Their exasperation might be reduced by looking deeper into the implications of a dualistic economic structure.

One qualification to this interpretation of economic rationality should be noted. Rational

Thus far it has been assumed that wage earning is the only course open to the members of the indigenous economy for increasing their real income as the capitalist economy expands. This assumption is not entirely realistic. Conceivably, members of the indigenous economy might also acquire increased real incomes through the sale of agricultural surpluses in response to the growing money demand for foodstuffs. Major obstacles, however, usually impede the marketing of surpluses by indigenous producers, even when output can be raised. In the first place, changes in the qualitative composition of output may be required. As the dietary requirements of workers in the indigenous and the capitalist economies are often quite different, unfamiliar crops must be introduced.[1] Further, the same natural obstacles which inhibited the extensive development of trade and forced the indigenous economies into a self-sufficient pattern of production may also check the subsequent development of agricultural marketing. Substantial investment in transport and communications facilities may be an essential pre-condition of crop sales in volume. In time, these barriers may be broken down. But, in the short run, only those indigenous producers enjoying proximity to the lines of communication may have a genuine option between selling crops and selling labour as methods of acquiring money income.

In those areas which are geographically favoured for the production of marketable surpluses, economic incentives may induce some change in the structure of indigenous agriculture. Should this happen, 'periodic' disguised unemployment might be absorbed. By exerting themselves more continuously in agricultural production, adult males might enable surpluses to be produced for sale. In the remoter areas, however, this possibility is precluded. For the moment, it will be assumed that capitalist expansion creates employment opportunities for indigenous labour but that substantial sales of agricultural surpluses are not possible. Later this assumption will be relaxed.

With this assumption, the effects of interaction between the two economies upon the process of economic expansion can be more clearly examined. The crucial question is the extent to which conditions of

economic behaviour in this form cannot be expected when contact is initially established between the capitalist and the indigenous economies. The tastes of the indigenous population must first be acclimatized to the goods which the capitalist economy makes available.

[1] Too little attention has been given to the qualitative difference in the demand for food in the two economies. R. Nurkse's treatment of disguised unemployment as a reservoir of concealed saving is a case in point. He argues that concealed saving could be transformed into effective saving if workers who make no addition to agricultural output could be employed on capital projects and fed the same food which they would have eaten had they remained in agriculture. Nurkse recognizes practical limitations to this policy. But the limitations are discussed entirely in quantitative, rather than in qualitative, terms. See *Problems of Capital Formation in Underdeveloped Countries* (Blackwell, Oxford, 1953), esp. pp. 36–47.

'periodic' disguised unemployment may affect the supply of indigenous labour differently from the case in which 'general' disguised unemployment exists. In working out the possibilities, the example examined earlier may again be introduced: i.e. the case in which, owing to the internal division of labour within the indigenous economy, the male labour force is redundant for roughly one year in every two.

In this situation (as in the one assumed by Lewis) the supply of labour from the indigenous economy would initially be perfectly elastic. Further, as long as the volume of absenteeism of adult male workers did not alter the family's agricultural output, there would be no tendency for the supply of labour to lose its elasticity. This case implies that migration between the two economies by the adult male is possible and, that—after spending a year in wage employment—he can return to maintain the productivity of the land worked by the indigenous productive unit.[1]

Migration in some form is a characteristic of most underdeveloped territories and this phenomenon has tended to persist. In the specific circumstances here assumed, it has advantages for both parties to the wage bargain. On the one hand, it offers opportunities for the indigenous family to increase its real income. At the same time, it frees the employer from the responsibility to pay a wage high enough to support both the worker and his family. Thus, in all probability, the money wage is lower than it would be if the indigenous family were completely dependent upon cash wages for their minimum requirements. But there are also pronounced economic disadvantages to this system. High turnover rates in the wage labour force are not conducive to improvements in efficiency and productivity. The employer has little incentive to invest in training a transient labour force and tends to organize his production on the premise that indigenous labour is cheap, abundant, and undifferentiated by skill.

We are now in a position to ask whether the supply of indigenous labour will retain its property of perfect elasticity indefinitely. Obviously there are limits beyond which a perfectly elastic supply of labour will cease to exist. In this context, what is most important is that indigenous labour will no longer be available at a constant real wage long before the whole volume of indigenous manpower has been absorbed into wage employment. Not only is this limiting case reached sooner, but it is also brought about for quite different reasons than those to which Lewis alludes.

[1] The disruption of production within the capitalist economy, of course, would be far more serious if disguised unemployment were entirely of a seasonal nature. Then it might be possible to obtain an abundant supply of labour for short-periods, and none at other times of the year. The capitalist economy, if it attempted to recruit workers only from the slack provided by 'seasonal' disguised unemployment, would then be obliged to suspend operations part of the time.

In the circumstances assumed, withdrawal of more than fifty per cent. of the adult manpower would lead to a sharp reduction in the output of the indigenous family. If the indigenous worker strives to maximize the real income for the family, it would follow that wage employment—at the original level of real wages—would no longer accomplish his objective. At this point, it would be necessary for the employer in the capitalist economy to increase the real wage by more than enough to compensate for the loss in real income which the indigenous family would sustain. Otherwise labour would not offer itself voluntarily. The original terms of contact between the two economies would then be radically altered. The supply of labour might become highly inelastic, rather than perfectly elastic, at the original real wage.

The assumption that the indigenous economy could not acquire money through the sale of agricultural surpluses can now be relaxed. The obstacles facing this means of acquiring money income may be formidable. But, if conditions become attractive for crop sales, some adult males in the indigenous population might be induced to extend themselves in agriculture and produce surpluses for market. A portion of the 'periodic' disguised unemployment within the indigenous economy would then be absorbed. The labour supply function to the capitalist economy would lose perfect elasticity before half of the adult male population had been withdrawn.

IV. The Stages of Economic Expansion Reconsidered

On the basis of the preceding analysis, we can now observe that Lewis's formulation of a two-stage scheme of economic expansion (one in which classical categories are applicable and one in which neo-classical categories come into their own) is misleading. His formulation rests on the special assumption that 'general' disguised unemployment characterizes the production of indigenous agriculture. If, on the other hand, 'periodic' disguised unemployment is the dominant feature of the indigenous economic structure, then his classification of stages breaks down.

We must now examine more closely the major properties of the special stage in the economic expansion process which the interaction between the capitalist and the indigenous economies has produced. When the demand of the capitalist economy has drained the indigenous economy of 'periodic' disguised unemployment, then indeed one of the formal conditions of Lewis's second stage has been fulfilled. The supply of labour is no longer perfectly elastic; it may, in fact, be highly inelastic (although it is conceivable that perfect elasticity might be restored at a much higher level of real wages than had conventionally prevailed). One attribute of the neo-classical understanding of full employment is also approximated; i.e. expansion of production in one direction cannot be accomplished without

incurring real costs in another. Yet the situation which has emerged is far removed from the neo-classical conditions in other respects. For the underdeveloped economic system as a whole, wide differentials in productivity remain and dualism in the economic structure has not been eliminated. No counterpart can be found in this situation for the corollary to the neo-classical view of full employment; namely, that productive resources are allocated optimally in the competitive situation. A chasm separates the marginal value product of the productive unit in the two components of the dual economic structure. We shall identify the situation created when the elimination of 'periodic' disguised unemployment disturbs the perfectly elastic supply of labour as 'quasi-full employment'.

What consequences are likely to flow from quasi-full employment? The problem cannot here be considered in detail, but several relevant aspects may be briefly noted. In the first place, it is apparent that quasi-full employment means sharp increases in the money costs of labour to employers in the capitalist economy. No longer can the capitalist economy sustain its expansion on the assumption that indigenous labour is always abundant and cheap. This change in the economic environment, conceivably, might provoke either of two general types of response. On the one hand, employers might not be prepared to alter the productive structure of the money economy or willing to accept lower rates of profit as labour costs have swollen. If this should be their response, the expansion of the capitalist economy would be slowed, but not completely checked. It would still be possible to obtain labour on the original terms if the capitalist economy confined increases in its labour demand to the manpower made available by the natural growth in the indigenous population of working age.

Alternatively, continued expansion in the capitalist economy might be sustained at a rapid pace without sacrifice in profits if employers adjusted the productive structure to offset increased labour costs by raising the marginal value product of the indigenous worker correspondingly. The introduction of higher techniques may be the most attractive way to accomplish this objective.[1] It is also possible that the productivity of indigenous labour could be increased by advancing its skills. In some of the underdeveloped countries—particularly those in which a colour bar is an established part of the institutional fabric—this form of adjustment to quasi-full employment may have little appeal. In these circumstances, deepening of capital, although a more costly expedient, may succeed in increasing the output of the indigenous employee without advancing his employment status.

It is apparent that the effects upon the further evolution of the under-

[1] The shift to higher techniques, if its net effect is to reduce the aggregate demand for indigenous labour, may also relieve some of the upward pressure on the real wage.

developed territory will be vastly different, depending upon which of the responses to quasi-full employment is chosen. In the first case, expansion is retarded despite the fact that a substantial part of the total economic system lies outside the domain of the capitalist economy. If the second course is chosen and higher techniques are introduced, the expansion of the capitalist economy need not be interrupted. But this course of action may also aggravate the dualism of the underdeveloped system. The disequilibrium between levels of productivity in the two economies, rather than being reduced, is intensified.

V. Conclusions

The findings of this examination of the problems of dualism, disguised unemployment, and the stages of expansion in an underdeveloped economy may be briefly set out as follows:

1. The conventional interpretation of disguised unemployment in underdeveloped areas rests on special assumptions which are not common to all underdeveloped areas; distinctions must, therefore, be drawn between 'general' and 'periodic' disguised unemployment if the expansion process in the underdeveloped world is to be adequately understood.

2. With the benefit of this distinction, a special stage in process of expansion (quasi-full employment) may be observed; the properties of this stage do not fit neatly into the categories of classical or neo-classical models.

3. When quasi-full employment emerges, prospects that economic expansion will follow a smooth and uninterrupted path are uncertain.

4. When quasi-full employment emerges, it is doubtful whether the operation of economic forces will minimize the disequilibrium characterized by dualism in the underdeveloped society.

To these conclusions, a final footnote must be added. Quasi-full employment rests on a delicate balance between land and population in the indigenous economy and the demand for labour in the capitalist economy. This balance may be only temporary and can easily be upset. If the indigenous population grows to the point that it can no longer be absorbed on the land without a reduction in the conventional level of family output, then 'periodic' disguised unemployment will be submerged by 'general' disguised unemployment. Time, in other words, may restore perfect elasticity (at the original level of real wages) to the supply function for indigenous labour. Should this occur, Lewis's assumptions might be formally reinstated. The money economy could expand again on the original terms. But it would not follow that economic expansion in this form would also improve the real income of the indigenous population.

Wesleyan University

ECONOMIES OF SCALE IN ROAD HAULAGE

A COMMENT

By A. A. WALTERS

In an article in this journal, Mr. Chisholm used a cross-section analysis of data from 285 operators to show that 'there are no scale economies in the business of milk collection from farms in England and Wales, and that there are even some slight diseconomies'.[1] Professor Gilbert Walker, on the other hand, thought that there were some economies of scale during the interwar years in general road haulage. The evidence collected in a study of transport in the West Midlands tends to confirm Walker's tentative hypothesis.[2] Chisholm's results are derived from a particular kind of contract haulage and, as he recognizes, cannot be assumed to be typical of the road haulage industry as a whole. There is, however, a serious methodological error in Chisholm's work. We shall argue that from Chisholm's results we can deduce no evidence at all about economies or diseconomies of scale. His results tell us something about the structure of competition and the valuation of different kinds of services. They do not measure the slopes of cost curves.

Chisholm defines the dependent variable, cost, in footnote 2 on p. 284: 'Cost refers to the payment made by the Milk Marketing Board, and therefore includes an element of profit, that which goes to the contractor.' Thus cost is equal to price. Chisholm's main result is that 'cost' does not vary much as the size of firm varies. But this is precisely what one would expect in a perfectly competitive industry producing a homogeneous product. Price is the same throughout the cross-section and so 'costs' are also constant from one firm to another.[3] Chisholm has discovered that milk collection has two of the symptoms of a competitive industry with a homogeneous output, i.e. constant price and a large number of producers.

Chisholm finds that 'there are even some slight diseconomies' because there is a slight rise in cost for the largest firms. But on p. 289 he says: 'In part this can be directly attributed to the factor of scale, in that a larger firm has to collect from a greater area which tends to reduce the quantity obtained per vehicle mile. But the decline in the quantity per farm with an increase in the scale of contractor's operations is probably

[1] Vol. 11, No. 3, Oct. 1959, pp. 282–90.

[2] Report on Costs, Charges and Competition in Transport—submitted to the Ministry of Transport in 1958. The research underlying this report was financed by Conditional Aid. In this report we also set out the conditions under which various techniques could be used for estimating cost functions.

[3] This point was first made by Milton Friedman in a brilliant comment in 'Conference on Business Concentration and Price Policy, Princeton, 1952', *N.B.E.R.* 1955.

not directly related to the scale factor.' But if there are diseconomies of scale, why are there any large firms at all? Surely the small firms would undercut the price of the large firms and force them to reduce their scale. It is difficult to explain the excess size of the large firms as a mistake which will be corrected in the long period. These large firms are a more or less permanent feature of the industry. It is also difficult to rationalize the existence of the large firms in terms of monopsonistic behaviour of the Milk Marketing Board. The most reasonable hypothesis is that the large firms perform services of a slightly more valuable kind, on the average, than those of smaller operators. The reason, one suspects, is because the larger firms can produce these more valuable services at a slightly *lower* cost than the smaller. The evidence in favour of this hypothesis appears in Table II of Chisholm's article; there is of course no empirical evidence on the reason for the hypothesis.

We have argued that Chisholm's results have no relevance to the empirical question of economies or diseconomies of scale. However, the fact that there is a large number of firms in milk haulage is presumptive evidence that there are no economies of scale. Even this may be treacherous evidence since it is possible that the average size of firm is growing quite rapidly. The large firm may be pushing the small firm either out of business or up the size scale. If this were the case, there would be presumptive evidence of the existence of economies of scale.

In the report submitted to the Ministry of Transport, we examined the growth and amalgamations of road haulage firms during the interwar years. The statistics of licences to carry goods for hire reveal no substantial change in the number of vehicles a licensee. But these figures are treacherous. One firm may appear in the statistics more than once as a 'licensee'. Data on growth and amalgamations of *firms*, as distinct from licensees, had to be extracted from the pages of technical and trade journals. These showed a considerable growth in the size of firm. Much of this growth was achieved by amalgamations—a typical example was Transport Services Ltd.—although the individual units kept their identity as 'licensees'. This tendency was especially strong for general haulage firms.

This evidence might be explained in other ways. It might be argued that these amalgamations took place in order to make a better case before the court of the licensing authority for additional vehicle authorizations. In a sense this made capital (in terms of vehicles) cheaper for the large firm than the small firm. I feel that this was quite an important explanation of the growth in size of firm during the years 1934–9, but there is no objective evidence to which one can appeal. If it were true, then economies of scale were artificially created by the system of regulation.

There is another method of discovering whether there are economies of

scale. One might use the data of time series of outputs and costs for a firm or for a group of firms. In our research on road haulage costs in the West Midlands we found that the usual difficulties of time series data—changes in techniques, prices, laws, &c.—prevented any use being made of that technique.

We conclude that Chisholm's cross-section analysis tells us nothing about the existence of economies or diseconomies, although the fact that there are a large number of operators is presumptive evidence of diseconomies. A survey of growth and combinations during the interwar years suggests that there are economies of scale in some important types of haulage. Chisholm's evidence does not contradict the tentative hypothesis originally advanced by Gilbert Walker.

University of Birmingham

A Reply

By Michael Chisholm

Mr. Walters observes that I have 'discovered that milk collection has two of the symptoms of a competitive industry with a homogeneous product, i.e. constant price and a large number of producers'. In so doing he makes a curious slip, for this statement must mean that there is one single price at which the service of milk collection is performed, applying to all firms. In point of fact, the price paid by the Milk Marketing Board varies from one contractor to another, as is admitted by Mr. Walters when he claims that Table II shows that the larger firms produce a more valuable service at lower price (or cost) than the smaller. (In point of fact, the table shows the reverse trend.) To infer a single price (or cost) is completely to misread the import of the regression coefficients displayed in Table I, which enable the price (or cost) per gallon for any contractor to be estimated from certain operating data.

This misconception appears to arise from two non-sequiturs, which may be stated thus:

(i) Price (or cost) does not vary much with the scale of operations, *therefore* there is *no* variation with the scale of operations.

(ii) As (*sic*) there is no variation in price (or cost) with scale, *therefore* price (or cost) is 'the same throughout the cross-section' and 'constant from one firm to another'. But uniformity along one line of section provides no inference about the behaviour of price (or cost) along another. It is precisely my point that while the factor of scale is relatively unimportant, other modes of classification provide an adequate explanation of differences in price (or cost).

In any case, had Mr. Walters paused to inquire, he would have discovered that the administrative structure of the Milk Marketing Board is such that each contractor is granted a local monopoly under licence from the Board. There is no competition from other milk contractors, only competition in the sense that there are willing persons who may make a bid to enter the industry by ousting an existing contractor. Inevitably, the market is not perfect, and a contractor would have to be much more than marginally inefficient to have his business threatened by the possibility of the Board finding another firm, as there is no auction of the licences.

The price which the Board pays for milk collection is determined separately for each contractor, whose operations are carefully assessed and costed by the Board at periodic intervals. The figure finally arrived at represents an agreed 'cost-plus' method of payment.

Hence, we can refute a further misconception. Mr. Walters says 'But

if there are diseconomies of scale, why are there any large firms at all? Surely the small firms would undercut the price of the large firms and force them to reduce their scale.' First, the diseconomies of scale are very small. Second, the *existing* structure of the industry is such that there is no possibility for a marginal increase in the scale of operations of one firm at the expense of a marginal decrease for another. The whole operations of one firm would have to be absorbed by another at one time, without any preparatory attrition. That is to say, any scale increase from this cause is necessarily highly stepped, not a continuous curve, and is therefore rendered rare.

The present size-distribution of firms reflects the situation which the Milk Marketing Board found when it was established in the 1930's. It is more interesting, therefore, to ask why there were any large firms at that time. To Mr. Walters' question, 'Why were there any large firms at all?', I posit the reply, 'Why were there any small firms?'. If, as he is seeking to show, scale economies do exist, why had not the small firms been pushed out of business? Surely, an argument conducted in such terms proves one thing only: that even with conditions of cut-throat competition such as existed in the 1930's, the factor of scale was of trivial importance. There was room for both large and small firms. Hence, we have a further proof of the unimportance of the scale factor, and it is really immaterial whether there is a slight tendency towards economies or diseconomies as scale increases.

Mr. Walters introduces the question of changes over time, such that technical changes favour operations in larger units. This is an entirely different matter from that of economies of scale at a particular moment of time. To be tiresomely precise, all that I have shown is that, in 1955–6, there would be no economy derived from amalgamating the smaller firms into larger units. No direct inference can be drawn about the long-term trend of events, and I have not ventured so to do. Thereby, I am faithful to one of Joan Robinson's favourite precepts: and Mr. Walters guilty of another piece of fallacious argument.

The fundamentally interesting point in this context is as follows. Mr. Walters claims to have valid evidence that the average size of firm is increasing over time, and infers, reasonably, that the small firms are either being pushed out of business or are themselves becoming larger. Hence, he claims, there are scale economies, and these should be apparent in a cross-section of firms at a point in time. And therefore, so the argument runs, my own results are fallacious because these scale economies do not appear. But this reasoning can validly be reversed to show that it is Mr. Walters' results which are wrong because they fail to support my findings. But both propositions may be invalid.

There is a perfectly simple manner by which the two findings may be reconciled. Let us assume that in an initial situation no economies of scale are apparent in a cross-section of firms. At some future time, considerable technical and economic changes have occurred, the effect of which is to reduce the level of costs incurred by firms, but in such a manner that the very smallest firms are unable to take full advantage thereof. They now suffer from distinct dis-economies as a result of being too small, and are likely to be driven out of business or forced to amalgamate. Above a certain threshold, however, no scale economies are apparent. Now, if such a threshold is fairly low, and if the competitive conditions are keen, virtually all these smaller firms may have disappeared at any particular moment of time. Hence, the absence of significant scale economies in a cross-section at a moment of time is compatible with the development of scale economies over time. From the diversity of enterprise size in many categories of manufacturing industry, and the knowledge that important scale economies have resulted from technical developments, we may infer that such a situation is common.

Finally, I did not set out to contradict Professor Gilbert Walker's statement that there are scale economies, nor is such a view implied. My examination of the milk haulage industry led me to the conclusion that there are no scale economies in that particular transport industry. Milk haulage differs from other transport operations in many respects, one of the most important being the absence of problems of return loads and the regularity of the traffic. This suggests that if economies of scale do exist in other transport operations, they are obtained by the facility with which a high vehicle usage can be obtained. I wrote: 'It appears that the main possible source of economies in transport operations may well be the business of organizing return loads and making up full consignments, and that no economies exist in the other aspects of the business. If this is in fact the case, it is of the utmost importance for policy relating to the organization of the road haulage industry, since all that is required for efficient operations is the provision of clearing-house facilities.' Could Mr. Walters tell us wherein lie the scale economies he avers exist in the firms studied for the report submitted to the Ministry of Transport?

Bedford College, London

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